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ORIGINAL ARTICLES.

THE ANNALS AND ACHIEVEMENTS OF AMERICAN SURGERY.

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[*Written for this Edition.*]

The clouds of superstition and ignorance which had enshrouded the earth during the dark ages had not been fully blown below the horizon at the time when the Genoese adventurer set forth in his frail bark on the voyage which was to introduce a new world to human knowledge. But few of the great names in medical history were contemporary with Christopher Columbus. Linacre was teaching at Oxford and writing works on the pulse, on symptoms and on healing. Germain Colot was busily engaged in the rehabilitation of the operation of lithotomy. Fallopius was but two years of age when America was discovered, and Sylvius was still a mewling infant.

It was not until forty-five years later that Vesalius, of Brussels, laid the foundation of modern anatomy by the publication of his splendid work on the structure of the human body. A century and a quarter elapsed before the English Harvey opened up the way to a knowledge of physiology by his demonstration of the circulation of the blood; and eighty-three years crept by before Ambroise Paré marked the new birth of the art of surgery by the production of his magnificent tome. Verily the healing art progressed but slowly in those days.

The sluggishness of growth characterizing medical science in the Old World did not fail to transfer itself to the development of the art in the New. During the colonial period of our country our source of medical learning, as well as of medical literature, lay across the water. The conditions of territorial dependence were not calculated to encourage original work in any line. Moreover, the conquest of the primeval forest and the hewing of a State from the wilderness demanded from the medical practitioner as well as the planter all the energies which could be spared from the pursuit of his mere livelihood.

It so happened, then, that the first medical book by an American author did not appear until 1775, nearly 300 years after Columbus showed the way to our shores, and on the eve of the birth of the Republic. Moreover, this book was on a surgical subject, and marks the beginning of American surgery. Written by Dr. John Jones, afterward the physician of Washington and Franklin, and published in New York under the title of "Plain, Precise, Practical Remarks on the Treatment of Wounds and Fractures," it contained but a single original observation—a case of trephining complicated with hernia cerebri—and was for the most part a simple compilation from the works of contemporary English surgeons.

The story of surgery in America previous to the nineteenth century is not an entire blank; it is but the natural account of an uneventful embryonic period, characterized not so much by distinct achievements, as by a steady growth in strength and learning preparatory to its full development in the present century. There were no practitioners devoting themselves exclusively to surgery, although not a few physicians were skillful and even bold operators. Abdominal section for extrauterine gestation was successfully performed in New York almost at the beginning of the eighteenth century. The colonial physician, like his analogue of the frontier of to-day, was a man of resources, not abounding in facilities for elaborating his work, but of ready wit and quick to adapt his means, inefficient though they might be, to the desired end. The more accomplished class of medical men included a considerable number who had enjoyed the best advantages of Paris, London or Edinburgh. Not a whit behind these, however, were many men who, deprived of these early aids, by the contemplation of nature, reinforced by profound study engrafted upon a disposition naturally adapted to the healing art, achieved a high position among their compeers, and contributed largely to the progress of American surgery.

During the earlier colonial period the student of medicine whose slender resources forbade attendance upon European schools must needs content himself with what could be gleaned from observation of his preceptor's patients, or from the perusal of the all too slender library of that

dignitary in moments snatched from duties as groom and man of all work—services gladly rendered in return for the opportunities of learning derived from his associations. In the winters of 1754, '55 and '56, Dr. William Hunter, who must not be confounded with the famous English anatomist of that name, gave a course of lectures upon anatomy and surgery in Newport, R. I. The first systematic instruction in surgery, however, was given by Dr. William Shippen, Jr., in Philadelphia. A pupil of the Hunters in London, he was encouraged, by the success of a course of anatomical lectures given in 1762, to join, in 1765, with Dr. John Morgan in the organization of the Medical College of Philadelphia, the precursor of the University of Pennsylvania, in which he held the chair of anatomy and surgery. Instruction in surgery was also given in the medical department of Kings, now Columbia College, in 1767, while the famous Dr. John Warren, of Boston, in 1782 and for thirty-three years following, gave instruction in this branch at Harvard College. From these small beginnings surgical instruction has developed into the great system with its many foci now found extending throughout the country.

The opening of the nineteenth century found maturing the young men who were to lay the foundations of American surgery. In Philadelphia was Philip Syng Physick (1768–1837). Tall and erect in person and strikingly handsome in features, he soon became the leader of the profession and styled the Father of American Surgery. Not a man of great breadth or extensive reading, he was eminently practical in his methods. He was the originator of an operation for the cure of artificial anus, and devised a treatment for coxalgia, of which the methods of the present day are but adaptations. After a score of years of surgical teaching he died, leaving no published papers except a few medical journal articles.

At his death the mantle of leadership fell upon Valentine Mott (1785–1865), of New York, who during the remainder of his career stood *facile princeps* in American surgery. A thorough anatomist, a fearless operator and a brilliant teacher, he represented the best type of the American surgeon. His achievements make a long catalogue, dating from his ligature of the innominate in 1819, and including excision of the clavicle and of the maxilla, amputations at the hip and many other exploits. Fully six feet in height, with a fine face and deliberate and dignified manner, he was a man of great personal magnetism.

Contemporary with Mott and Physick, Benjamin Winslow Dudley (1785–1870), of Lexington, Ky., for many years dominated the surgery of the southwest. Distinguished as a lithotomist, his success in the removal of vesical calculi was unusual and his statistics remarkable. He was noted for his advocacy and extensive use of the roller bandage in fractures and external applications. He, too, made but few contributions to surgical literature, these being confined to medical journal articles.

The West was represented by Reuben Dimond Mussey (1780–1866), who, although of high repute as a surgeon and teacher in New England for twenty years, is prominently identified with Western surgery through the fact of his having passed the crowning years of his career in Cincinnati. His ligature of both common carotids after an interval of but twelve days, is classical. Although he did much valuable work, his failure to publish anything but a few brief reports of cases has rendered it of but little value to the profession. Of low stature and plain features, his success was due in no respect to an attractive presence, but to his skill alone.

John Collins Warren (1779–1851), of Boston, was the surgical autocrat of the northeast. Son of the founder and first professor of surgery in Harvard, and nephew of the famous general of Bunker Hill, he entered upon his career with all the *eclât* of the highest professional, personal and official relations. The first surgeon to operate upon a patient anæsthetized by ether, his work never failed to be characterized by ability and enterprise. He was the most scholarly of the five great contemporaries who ruled the surgery of this country during the first half of the present century, and in addition to many medical journal papers he was the author of a valuable work on tumors.

Surgery, led by these men, with the efficient support of many others, advanced steadily through the following decades. Gibson (1788–1868) added great strength to the University of Pennsylvania, while McClellan (1796–1847), a bold operator and fascinating teacher, worthily rivalled him, and with the support of Randolph, Mütter, Gilbert, Norris, H. H. Smith and Rhea Barton, rendered the city of brotherly love the surgical centre of the country. New York, under the leadership of Mott, supported by Kissam, Kearney Rodgers, Stevens and Bushe, pressed hard for the precedence. Smith, Hayward, Twitchell and Crosby made New England the source of much surgical knowledge. Warren Stone, John B. Davidge, Ephraim McDowell and Josiah C. Nott upheld the credit of the South; while Daniel Brainard, the younger Mussey, Horace Ackley and J. N. McDowell combined in perfecting the surgical work of the West.

Coming down nearer to our own day, we see in Philadelphia Samuel D. Gross (1805–1884) and Joseph Pancoast (1805–1882). Developing together, it is noteworthy that the greater portion of their lifetimes was passed in close association. Both surgeons of rare skill, teachers of great attractiveness, and authors of profound learning, they added greatly not only to the usefulness of

American surgery, but increased markedly the sum total of surgical knowledge. The death of his associate left Gross not only the greatest of Philadelphia's surgeons, but the chief authority in the surgical profession of America.

In New York, Willard Parker, James R. Wood and Frank Hastings Hamilton were long the leaders in surgery. Parker (1800–1884), while a successful and popular lecturer, was not an author. He excelled as an operator, working with either hand with equal facility. Among his contributions to surgery were operations for abscess of the vermiform appendix and for lacerated perineum. He was also the first to point out concussion of the nerves, as distinguished from concussion of the nerve centers. Wood (1816–1882) was a bold, rapid and anatomically sure operator and an attractive and earnest teacher. Practically the founder of Bellevue Hospital and its College, he was an enthusiastic pathologist, his collection still remaining as the nucleus of the Wood Pathological Museum. Hamilton (1813–1886), as a professor in Fairfield, Geneva, Buffalo, Brooklyn, and lastly in New York, met with exceptional success. His operative dexterity, combined with his talent for imparting knowledge and his facility of literary expression, combined to form a most remarkable character. His chief work was in the line of fractures, for the treatment of which he devised a number of useful appliances. Like Gross, he was a prolific writer, and left many valuable works as monuments of his skill and erudition.

In Moses Gunn (1822–1887), of Chicago, was afforded an example of the highest order of the practical surgeon. After seventeen years' surgical teaching at the University of Michigan he succeeded Brainard in Chicago, where he most worthily sustained the dignity of the profession. Ever enthusiastic in his prelections and brilliant in his operations, he made a deep impression upon the surgical practice of the country.

John T. Hodgen (1824–1882), of St. Louis, labored for forty years as a teacher and practitioner of surgery in that city, achieving not only a local but a national reputation for originality and ability. Author of no set surgical treatise, he enriched the current literature of the profession by numerous clinical reports and papers on fractures and other subjects.

Many other accomplished surgeons have added to the lustre of American surgery. Sands, Sabine, Little, Mason and Howe; Hodge, the younger Gross, Otis and Cowling; Byrd, Prince and many other names are essential to the complete history of American surgery. They will long be known by their works, and the omission of further reference to them must be attributed not to lack of appreciation of their splendid results, but to the iron rules of time and space. For even more obvious reasons the story of the still unclosed careers of living surgeons should be delayed until the quiet of the grave shall have softened criticism and tempered eulogy.

The list of surgical procedures originated by American surgeons is a long one, and to attempt more than an approximately complete one would be useless, so numerous are they, and affecting so many branches of the art. To repeat the mere names of the methods which have been improved would require a volume, while a recital of the mechanical appliances which surgery owes to American ingenuity would be a most laborious task.

Anæsthesia in operative surgery the world owes to America. In 1844 the anæsthetic qualities of nitrous oxide were discovered and utilized by Horace Wells, a Hartford dentist. He failed, however, to bring it before the profession, and it was not until in 1863 that Drs. Colton and Smith practically applied it in New Haven, Conn., from which time it entered upon a career of popularity, particularly as a dental anæsthetic.

The anæsthetic action of ether for a considerable time kept nitrous oxide in obscurity. Discovered only two years later, in 1846, by Dr. William T. G. Morton, of Boston—his attention having been attracted to the subject by his preceptor, Horace Wells—and brought before the profession with great *eclât* in John C. Warren's clinic at the Massachusetts General Hospital, it has remained the most extensively used of the anæsthetic agents in this country. It should be observed that the credit of the discovery of the anæsthetic properties of this agent has been ascribed by some authors to Dr. Wells himself, while the South has made a strong plea in favor of the claims of Dr. Long, of Georgia; but in any case the world owes to America this discovery, which has not only vastly reduced the sum total of human suffering, but has rendered possible more careful and painstaking work, and by greatly diminishing the shock to the system of the patient, has brought within reach recovery from operations, unattainable under the old régime.

The analgesic properties of cocaine were discovered in 1884 by Dr Karl Koller, now of New York, although at that time a student in Vienna, and publicly demonstrated by him at Heidelberg in that year. The method of prolonging the local anæsthetic effect of the drug by the application of pressure sufficient to retain it in the parts to be subjected to operation was discovered by Dr. J. Leonard Corning, of New York.

The use of bromine in the local treatment of hospital gangrene was discovered by Dr. Middleton Goldsmith, of Rutland, Vt., who was then a surgeon of volunteers in the war of the rebellion, which gave him facilities for treating many cases of this kind in military hospitals in the South.

Many improvements in antiseptic and aseptic surgery have emanated from American hospitals.

Among these may be mentioned the introduction to the profession of hydronaphthol as an antiseptic agent by Dr. George R. Fowler, of Brooklyn, N. Y., who in 1885 published an exhaustive paper presenting a large number of cases demonstrating its value.

The use of the elastic bandage in the treatment of varicose veins and ulcers was demonstrated by Dr. Henry A. Martin, of Boston, who in 1877 brought his discovery before the American Medical Association.

The diminution of violent inflammation in the extremities by cutting down the blood supply of the part was first practiced by Dr. Henry M. Onderdonk, of New York, who in 1813 ligatured the femoral artery to relieve excessive inflammation consecutive to a wound of the knee-joint. In 1866 the procedure was discovered independently by Dr. Henry M. Campbell, of Atlanta, Ga.

The practice of rendering limbs bloodless before subjecting them to operation is of American origin, and was first employed in Philadelphia by Drs. Joseph Pancoast and S. D. Gross.

The implantation of skin for the cure of chronic ulcers was first performed by Dr. Frank H. Hamilton in Buffalo, in 1854, under the name of anaplasty. This operation was the precursor of the skin grafting of Reverdin, although there seems to be no doubt but that the latter method was conceived without any knowledge of the former.

Animal ligatures were originated by Dr. Philip Syng Physick, of Philadelphia. In 1844, at his suggestion, Dr. J. S. Dorsey successfully ligatured a large artery in a horse with a ligature of buckskin, the material having been cut into strips, which were rolled upon a marble slab to render them round and solid. He afterwards employed the method in a number of operations, some of them capital, cutting the ends of the ligature close and leaving it there to be absorbed in a closed wound. Dr. Joseph Hartshorne, of Philadelphia, soon after secured the vessels, in an amputation of the thigh, with strips of parchment, and obtained a good result.

S. D. Gross is the authority for the statement that the innocuous character of the metallic ligature was first satisfactorily demonstrated by Dr. Henry S. Levert, of Mobile, Ala.; while Dr. Warren Stone, of New Orleans, was the first to apply a wire ligature, relieving an aneurism of the external iliac by tying the common trunk of that vessel with wire.

The cure of aneurism by digital compression is undoubtedly an American procedure. Agnew states that Dr. Jonathan Knight, of New Haven, Conn., was the first to apply this method successfully, curing a popliteal aneurism by its employment. Priority is ascribed, however, by others to Warren Stone, of New Orleans. It is worthy of note also that Dr. Knight was twice elected President of the American Medical Association, being the only member who has ever been so complimented.

Valentine Mott, of New York, in 1818, and while but 34 years of age, was "the first to execute the bold, brilliant and difficult feat of taking up the innominate artery for aneurism of the subclavian," and this operation placed him at once in the front rank of the surgical world.

Dr. A. W. Smyth, of New Orleans, simultaneously ligatured the innominate and common carotid arteries for traumatic subclavian aneurism, and averted death from secondary hæmorrhage by ligature of the vertebral artery on the fifty-fourth day. The patient survived ten years.

Dr. Amos Twitchell, of Keene, N. H., successfully ligatured the common carotid artery in a case of secondary hæmorrhage, performing this operation in 1807, eight months earlier than Sir Astley Cooper, to whom has been ascribed the precedence in this operation.

Dr. Macgill, of Maryland, in 1823, was the first to perform ligature of both common carotids in the same patient, a month intervening between the two deligations. In 1857 Robert, of Paris, ligatured the left carotid, thirty-eight years after the right had, in 1819, been secured by Dupuytren in the same patient, but the double operation could not properly be said to have anticipated that of Macgill. Moreover, the facts that death was consequent upon the application of the second ligature, and that during the long interval the collateral circulation might have had ample time to adapt itself to the new conditions before the left was tied, take the operation out of the same category as that of Macgill in any event.

Dr. L. C. Lane, of San Francisco, in 1887, for the first time successfully simultaneously ligatured both common carotid arteries in the same patient, both being secured during the same operation with an interval of but an hour and a half between the application of the two ligatures.

Dr. Wright Post, of New York, was, in 1817, the first to successfully ligature the subclavian artery. The operation was performed for the relief of aneurism, in which it was successful.

Dr. J. Kearney Rodgers, of New York, in 1846, first successfully ligatured the subclavian artery between the scaleni, operating on the left side for aneurism.

Dr. William Gibson, of Baltimore, afterwards of Philadelphia, in 1812, first ligatured the common iliac artery for gunshot wound, the patient dying from secondary hæmorrhage thirteen days later. Valentine Mott, of New York, in 1827, first performed the operation for aneurism, the lesion affecting the external iliac.

Dr. J. M. Carnochan, of New York, was the first to render practicable section of nerves for facial neuralgia. His operation consisted of division of the superior maxillary nerve posterior

to Meckel's ganglion, in front of the foramen rotundum.

The operation of straphylorrhaphy, although first practiced in 1819 by Roux, was originated independently in 1820 by Dr. John C. Warren, of Boston, whose procedure, moreover, was preferable to that of Roux.

Dr. J. Mason Warren, of Boston, in 1843, followed in the footsteps of his father by devising the operation of uranoplasty.

Dr. Joseph O'Dwyer, of New York, in 1886, was the first to devise a practicable method of tubage of the larynx, whereby in many cases of tracheal obstruction, tracheotomy was rendered unnecessary.

Dr. Maurice H. Richardson, of Boston, in 1886 demonstrated the accessibility of all parts of the œsophagus to digital inspection, either by gastrotomy or œsophagotomy.

Dr. Nathan Smith, of New Haven, was the first to trephine for the relief of inflammatory affections of bone.

Dr. Horatio G. Jameson, of Baltimore, for the first time removed the superior maxilla in 1820, leaving only the roof of the antrum; and Dr. David L. Rogers, of New York, in 1824 first removed both upper maxillæ.

Dr. Deaderick, of Tennessee, in 1810 for the first time made a partial resection of the lower jaw.

Excision of the coccyx was first performed in 1832, for coccygodynia, by Dr. Josiah C. Nott, of Mobile, Alabama.

The treatment of ununited fractures by wiring the fragment was first successfully practiced by Dr. J. Kearney Rodgers, of New York.

Dr. Lewis D. Mason, of Brooklyn, N. Y., in 1881, was the author of the simplest and best method of treating depressed fractures of the nasal bones by passing an ordinary straight surgical needle through the line of fracture from one side of the nose to the other, after the fragments have been properly elevated.

Dr. Gurdon C. Buck, of New York, introduced to the profession the treatment of fracture of the thigh by continuous extension by weight and pulley, without other encumbering apparatus.

Dr. John Rhea Barton, of Philadelphia, was the first surgeon to treat fracture of the patella by wiring the fragments, using silver wire. This operation was performed in 1834, but the patient died. Dr. George McClellan, of Philadelphia, in 1838, however, was the first to perform this operation successfully, using a soft iron wire. The patient recovered and a bony union resulted.

Dr. Oscar H. Allis, of Philadelphia, was the first to appreciate the pathological conditions found in fractures of the lower end of the humerus, and to apply the treatment proper for the prevention of deformity.

Dr. Lewis S. Pilcher, of Brooklyn, N. Y., in 1878, was the first to demonstrate the correct pathology of fractures of the lower end of the radius, and to apply the treatment logically indicated by the pathology.

Methods of treating fractures of the clavicle have been devised by Dr. Lewis A. Sayre, of New York, Dr. E. M. Moore, of Rochester, Dr. George Fox, of Philadelphia, and others; while individual modifications and methods of treatment of various fractures have been devised by American surgeons without number. Splints and dressings have been devised by Ahl, Agnew, Coover, Levis, N. R. Smith, Hamilton, Hodge, Physick, Packard, Shrady, Burge, Bauer, Hodgen, Brainard, and many others.

Dr. Lewis A. Sayre, of New York, introduced to the profession the plaster-of-paris jacket in the treatment of Pott's disease of the spine, the most important dressing in this form of spinal trouble, and for his discovery of it, according to Agnew, "humanity owes him a debt of everlasting gratitude."

The reduction of dislocations by manipulation instead of by main force, although previously practiced empirically to some extent, was first made practicable through the experiments and deductions of Dr. Wm. W. Reid, of Rochester, N. Y., in 1855.

Dr. Dixi Crosby, of Hanover, N. H., discovered the method of reducing dislocations of the thumb and fingers by forced extension and pressure upon the base of the dislocated bone.

The function of the Y ligament of the hip-joint in dislocations of the head of the femur was discovered and demonstrated, by Dr. Henry J. Bigelow, of Boston.

In no branch of surgery has the American surgeon shown to greater advantage than that of the abdomen. Free from the restraints of tradition and guided by experience and observation, he has struck boldly into this field of surgery. As has already been remarked, so long ago as 1714 Dr. Baird, of New York, for the third time in history performed laparotomy for extrauterine gestation. This was the first recorded case of abdominal surgery in this country.

It was reserved, however, for an obscure country doctor in Kentucky, nearly a hundred years later, to rescue abdominal surgery from the realms of uncertainty and place it upon the pedestal of general recognition. Dr. Ephraim McDowell was born in Virginia, but after studying medicine in Edinburgh entered upon the practice of his profession in Danville, Ky. In 1809 he performed his first operation of an ovarian tumor, repeating it in 1813 and again in 1816, but not publishing his cases until 1817. His operation was greeted with opposition and himself with censure, but he did not falter until all opposition was overcome, and ovariotomy became one of the recognized operations of surgery.

The first recorded case of abdominal section for gunshot wound of the intestine was that of Dr. R. A. Kinloch, of Charleston, S. C., who performed the operation, with a fatal result, however, in 1881. The operation has since been done by a large number of American surgeons with entire success.

Dr. Nicholas Senn, of Milwaukee, Wis., in 1887 presented the result of a vast amount of experimental research into the surgery of the intestines, in which many improvements in technique were included. And in the following year he made known a method of rendering positive the diagnosis of intestinal perforation without exploratory laparotomy. Having demonstrated the permeability of the ileo-cæcal valve by gas, his device of the rectal insufflation of hydrogen and its detection at the wound by a flame was a natural deduction.

Dr. Robert Battey, of Rome, Ga., in 1872 was the first to practice oöphorectomy, or extirpation of the ovaries, for the purpose of prematurely inducing the menopause in cases in which menstruation was productive of bad results, and from its originator the operation has been called "Battey's operation."

Dr. R. A. Kinloch, of Charleston, S. C., in 1863 performed enterectomy for artificial anus according to a method advised by the elder Gross in 1847, excising a portion of the bowel and suturing the divided ends.

The possibilities and limitations of the surgery of the pancreas were for the first time demonstrated in 1886 by Dr. Nicholas Senn, of Milwaukee, Wis.

Dr. E. B. Wolcott, of Milwaukee, Wis., performed extirpation of the kidney in 1860. The patient survived the operation fifteen days, death then being caused by exhaustion from profuse suppuration.

Dr. Albert G. Walters, of Pittsburg, Pa., in 1862, was the first to perform laparotomy for rupture of the bladder; this case was also the first successful case.

Dr. Greensville Dowell, of Texas, devised an operation for the radical cure of hernia remarkable for its simplicity of detail and its satisfactory results. It consisted of circumclusion of the boundaries of the inguinal canal with a ligature, using a double-pointed curved needle devised for the purpose.

Dr. Charles McBurney, of New York, is the author of the operation for the radical cure of hernia which is regarded with the greatest favor by the majority of surgeons in this country and by many abroad. Opening up the entire inguinal canal up to the external ring under the most careful antisepsis, he loosens up and ligatures the sac as high up on its neck as possible; he then closes the upper and lower angles of the wound in the integument and packs the entire canal with gauze and iodoform, leaving it to heal by granulation.

Exstrophy of the bladder was first remedied by a plastic operation in 1858, by Dr. Joseph Pancoast, of Philadelphia.

Dr. Willard Parker, of New York, in 1846, gave to the profession the operation of cystotomy for the relief of chronic cystitis. This procedure was first applied to chronic cystitis in the female by Dr. Nathan Bozeman, of New York, in 1861.

The operative treatment of stone in the bladder was revolutionized in 1878 by Dr. Henry J. Bigelow, of Boston, who discovered the tolerance of the bladder to prolonged manipulations, and upon it founded the operation of rapid lithotrity with immediate evacuation of the crushed stones by washing the bladder, giving to the process the name of litholapaxy.

Dr. Philip Syng Physick, of Philadelphia, was the first to place internal urethrotomy upon a scientific basis by designing, in 1795, a catheter bearing a concealed lancet which could be projected at will. It was a crude instrument as compared with the later productions of Otis and Gouley, both also American surgeons.

Dr. Joseph W. Howe, of New York, in 1881, devised a most ingenious substitute for the penis after amputation of that organ, in the construction by a plastic operation of labia minora or nymphæ from the redundant tissues of the scrotum.

The increased frequency of extensive injuries due to the close network of railroads with which the country is covered, has rendered more frequent the necessity for multiple amputations. Simultaneous triple amputations have been successfully performed by Drs. John Ashhurst, Jr., of Philadelphia; James B. Luckie, of Birmingham, Ala.; Warren Stone, of New Orleans; Reid Alexander, of Kansas; Koebler, of Schuylkill Haven, and others; while Dr. G. C. Wallace, of Rock Rapids, Ia., has reported a successful case of simultaneous quadruple amputation.

Dr. J. Marion Sims, then of Montgomery, Ala., and later of New York, in 1852, was the first to devise a practicable operation for the relief of vesico-vaginal fistula, facilitating the operative procedure by the use of the speculum known by his name, using silver wire to retain the freshened edges in contact until union could occur, and providing drainage of the bladder sufficient to protect the wound from contact with the urine. As an accessory to this operation arose the method of exposing the intra-vaginal parts by retraction of the perineum and posterior vaginal wall by the duck-bill speculum, with the body of the patient so placed as to secure distension of the vagina by air. And this, greatly extending the accessibility of the female genito-urinary organs to operation, really gave birth to a new branch of surgery—gynecology.

The removal of fibrous tumors of the uterus was, before the operations of Dr. W. L. Atlee, of

Philadelphia, considered in most cases to be an impossible and fatal procedure. By many successful enucleations, and by his essay on the subject to which was awarded the prize of the American Medical Association in 1853, he brought these cases within the field of modern surgery.

The attention of the profession was in 1874 first attracted to the pathology and operative indications of lacerated cervix by Dr. Thomas Addis Emmet, of New York, who introduced the plastic procedure for its cure, now known by his name.

Dr. T. Gaillard Thomas, of New York, in 1870, devised and first performed the operation of vaginal ovariotomy, removing successfully an ovarian cyst the size of a large orange through an opening in the vagina and sac of Douglas.

While the United States produces a greater number of general medical journals than any other country, periodicals devoted exclusively to surgery have been but few in number. American surgeons, however, have freely given their services to general medical journalism. As early as 1824 George McClellan edited the *Medical Review and Analectic Journal* in Philadelphia, and George Bush was the founder of the *New York Medico-Chirurgical Bulletin* in 1831. George A. Otis edited the *Virginia Medical and Surgical Journal* before entering upon the preparation of the *Medical and Surgical History of the War of the Rebellion*. F. H. Hamilton, both of the Grosses, Cowling and many others have occupied the editorial tripod.

It was not until 1876 that the *Archives of Clinical Surgery*, the first American surgical periodical, appeared in New York under the direction of Dr. Edward J. Bermingham. In the following year, however, it extended its field to the entire domain of medicine becoming the *Hospital Gazette*. Another ephemeral surgical journal was the *International Surgical Record*, started in New York as a weekly by Dr. Achilles Rose, in 1880. This too expired soon after its birth from lack of support. The first permanent move towards the establishment of a surgical journal was made in 1881, when Dr. L. S. Pilcher, G. R. Fowler and the writer transformed the proceedings of a local society in Brooklyn, N. Y., into the *Annals of Anatomy and Surgery*, devoting its pages exclusively to surgery and the anatomical applications of surgery. Published monthly with success during the ensuing three years, it was then suspended for a year. From it then sprung, in 1885, the *Annals of Surgery* under the editorship of L. S. Pilcher, who still remains at its head. In 1888, surgical journalism was further reinforced by the *International Journal of Surgery and Antiseptics*, published quarterly in New York and edited by Dr. M. J. Roberts.

American contributions to surgical literature, however, have been abundant and of excellent character. The first systematic work on surgery was the *Elements of Surgery* of John Syng Dorsey, published in Philadelphia in 1813, and passing through three editions. Works on surgery by both Gibson and McClellan, were published respectively in 1827 and 1848, that of the latter being issued posthumously by his son. Philadelphia has provided us with three more systematic treatises on surgery, those by Ashhurst, Gross and Agnew, the two latter being encyclopædic works, unequalled at the time of their publication in any country. The *International Encyclopædia of Surgery*, edited by Ashhurst but published in New York, in spite of its title is an American work of great value and the largest work on surgery ever published in the English language. New York has also given us the treatise on surgery, which F. H. Hamilton considered the crowning glory of his career, and more recently a textbook on surgery by Wyeth, remarkable for its conciseness and adaptation; while the lectures of Van Buren, published posthumously, form a most valuable collection.

The war of the Rebellion created a demand for works on military surgery which was early supplied by the handbook of Tripler and Blackman, the treatise of Hamilton and the manuals of Gross and Chisholm. But the masterpiece of American military surgery is the surgical division of the *Medical and Surgical History of the War of the Rebellion*, of which the first two volumes and much of the third were planned and executed by Otis, the work being completed by Huntingdon. This splendid work, the most magnificent creation of its kind the world has ever seen, will stand a perpetual witness to the high character of American military surgery.

Operative surgery is well represented by the works of Stephen Smith, Bryant and Packard, while Jarmany's operative surgery on the cadaver is a most valuable textbook.

General surgery includes Lyman on anæsthesia, Ranney on surgical diagnosis, L. S. Pilcher on the treatment of wounds, Gerster on aseptic and antiseptic surgery, and Wales on mechanical therapeutics.

Abdominal surgery is treated in general by Mears and Wyman, the surgery of the intestines by Gross and Senn, and hernia in the works of Warren. Affections of the rectum have been ably considered by Andrews, Bush, Bodenhamer and Kelsey.

In no branch has the American surgeon been more successful than in the bones and joints. The works of Bigelow, Sayre and Shaffer on orthopædic surgery are classical. The subject is further considered in Markoe's work on diseases of the bone, Nott on bone and nerve surgery, Ashhurst on injuries of the spine, Poore on osteotomy and osteoclasis, and Hodges on excision of the joints. The hip-joint is thoroughly consid-

ered in special works by Bigelow, Carnochan and Gibney. The elder Gross produced a work on bones and joints in 1830, while three decades later Hamilton issued his classical work, covering the same field under the title of "Fractures and Dislocations." This work, which has been translated into French and German and has passed through seven editions in English, is still the chief authority on the subject of which it treats. More recently an exhaustive work on the same subject by Stimson has met with great favor.

The territory of genito-urinary surgery has been covered by Van Buren and Keyes, Gouley, Bellfield and the younger Gross; while Durkee and Bumstead are authorities on venereal diseases.

Glancing for a moment at the special branches, it will be observed that the surgery of the female genito-urinary organs has nowhere been more thoroughly studied than in the United States; the works of Skene, Emmet, Byford and Thomas are evidences of American superiority in this specialty. In other branches equal evidences of industry may be seen.

These references to American contributions to surgical literature have been designed to be suggestive rather than comprehensive, to show their existence and scope rather than their amount. In addition to the works noted, a vast number of independent monographs and medical journal papers still further bear witness to the activity of American surgical practice. The production of surgical literature is encouraged also by the surgical societies formed in the larger cities and by the American Surgical Association, which meets annually for the discussion of surgical subjects and publishes a yearly volume of transactions, the high character of which has been an important factor in building up the surgical reputation of the country.

From this brief review of the character and work of the American surgeon then, it becomes evident that his brilliancy and force as a teacher, his originality and skill as an operator, and his grace and impressiveness as an author, have united to secure the high position accorded to him by other nations. Scarcely a century has elapsed since the advent into practical work of the first American surgeon, Philip Syng Physick, the Father of American Surgery. In this comparatively brief period his successors have not only brought their profession to an equality with that of older countries, but have in great measure been able to repay the instruction received from them by the addition to surgical knowledge of new facts, new processes, and new ideas.

THE medical students of Bologna have opened a subscription for the erection of a bust of the late Professor Loreta in the clinical theatre of the University.

TREATMENT OF PERITONITIS.

Read in the Section of Surgery and Anatomy, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY J. M. BALDY, M.D.,
OF PHILADELPHIA.

According to Alonzo Clark, "it is to Bichat belongs the merit of having proved that inflammation of the peritoneum is a disease distinct, and that it ought to be separated from enteritis, gastritis, etc." It is in this conception of the disease that the treatment as taught the profession by Clark has had its origin, and has maintained its hold for so long a time. It was only possible for it to do so, even theoretically, by some such conception; a conception which is based on anything but fact, as has been abundantly proven during our recent tremendous strides in knowledge of abdominal diseases. In fact, it is becoming daily more and more apparent that the vast majority of attacks of peritonitis assume virtually the character of a symptom; the disease being some well recognized lesion of the abdominal or pelvic viscera.

Habershon has studied the record of 500 autopsies of peritonitis made at Guy's Hospital during twenty-five years, amongst which definite lesions were found to be at the bottom of 400 or more, but he "cannot find a single case thoroughly detailed where the disease could be correctly regarded as existing solely in the peritoneal serous membrane." In attempting to draw different conclusions from this list, Alonzo Clark says "this statement must be received with some caution. In twenty-five years the records were probably made by a number of different persons, and persons of varying views and varying capacity and judgment. It embraces the cases when inflammation of the serous membrane occurs in the course of albuminuria, pyæmia, puerperal fever, erysipelas, etc." It also includes "peritonitis caused by general nutritive changes in the system, as seen in struma, cancer, etc.," "comprising also those cases in which the circulation of the peritoneum has been so altered by continued hyperæmia (modifying its state of growth) that very slight existing causes suffice to excite mischief, as in peritonitis with cirrhosis, disease of the heart, etc. With these explanations the statement differs widely from what it would seem to mean without them. It is far from saying that peritonitis always follows some abdominal lesion and is caused by that lesion." This reasoning of Clark's is as faulty as he apparently makes that of Habershon. For instance, take the puerperal fever cases. Nothing being said to the contrary, it is fair to assume that the origin of the peritonitis was in the uterus, and for all practical purposes would then be in the abdominal cavity. And so it is with the cases of pyæmia. Granting they were not also of puerperal origin, yet no one could say that a peritonitis following an attack of

pyæmia was in any sense of the word, idiopathic. This same disposition could also be made of most of the other objections advanced by Clark, excepting probably in some of the strumous cases, those arising from simple cirrhotic disease, and from heart disease. However, here comes another objection which cannot by any possibility be overlooked. These examinations were made by "a number of different persons, and persons of varying views and varying capacity and judgment." The examiners have undoubtedly in many cases overlooked the true cause, and have falsely attributed it to something else, for the very common reason (as we all know from experience) that they did not know to what else to fasten the blame. To just that extent these negative results of post-mortem examinations are open to suspicion. What was known, for example, of pelvic inflammatory diseases twenty-five years ago? And were they not all systematically overlooked? To-day this is recognized as one of the most frequent causes of peritonitis. Not only is the chronic disease in the pelvis secondarily responsible for many attacks, but the causes of the pelvic disease itself (for instance gonorrhœa), often primarily are the origin. No safe deductions can be drawn from these post-mortem studies made a quarter of a century ago, undoubtedly by some who were not capable of making a thorough and searching examination, and in days when diseases which are now very common, were not recognized or noted at all. That peritonitis is a disease distinct and is idiopathic in its origin is boldly disputed *in toto* by many, their opinion being based on not only clinical and post-mortem evidence, but on data obtained by an opening into the peritoneal cavity during life and during the progress of the attack itself. That peritonitis is absolutely never idiopathic in its origin I am not, as many others are, fully prepared to say. But of this, at least, we are sure; that in the vast majority of cases, there is a distinct lesion as the exciting cause, and personally, in quite a large experience with this disease, I have never seen a case in which a definite cause was not (probably) present. If we accept this view of the etiology of peritonitis, as I think we needs must, it is perfectly clear that, even from a theoretical point of view, we must find some other treatment than that by narcotics. Practical experience has long since taught that this must eventually be so. The only ground on which opium could possibly hold its place in the treatment of this disease, is on the theory that the peritonitis was idiopathic. As I cannot accept this view, or at least only as of extremely limited and doubtful application, I am forced into looking for more certain and more exact methods of treatment. Of course, as in many diseases, it is at times only necessary to relieve the symptoms, in order to at least temporarily cure the patient. It becomes comparatively or absolutely necessary, at other times, to cure the disease which is manifesting itself by this most dangerous symptom. Under these two headings then, I shall consider the treatment, ignoring the fact that peritonitis may be a distinct disease; for the double reason that it is extremely doubtful whether it ever is so, and even if it is, it matters little, as it would not in the slightest degree alter the line of management.

It must appeal to the reason of any one that in any given case of peritonitis the two great and dominant principles involved in the treatment, aside from the actual ablation of the original cause, must be to get rid of the irritating products of inflammation and thus prevent an increase in an already highly inflammatory trouble, and to get rid of the excess of blood determined to the inflamed part. In other words, we must ever bear in mind the absolute necessity of drainage and depletion; principles which are universally accepted when applied to inflammations of any other part of the body, and which have only been lost sight of in dealing with the peritoneum. It is simply the old idea, in another form, of fear of the peritoneum, with which the profession was so long imbued, and the idea that principles as applied to other parts, could not with equal safety be applied to this sacred membrane. We have, however, so thoroughly demonstrated the folly of this supposition, that it is now notorious that this portion of the human anatomy can be treated with as much impunity as any other, provided it be done on the same common sense principles. Other than by surgical means, our greatest and best channel for drainage and depletion is through the intestinal canal, by the aid of purgative medicines. Bearing in mind the principles on which this treatment rests, a purgative which produces large watery passages is to be selected, and of these, for routine treatment, the magnesium salts are possibly the best. Again, still bearing in mind the object of the treatment, these salts must be given in large and concentrated doses. In ordinary cases of local peritonitis it is customary to administer to the patient a teaspoonful of sulphate of magnesium or Rochelle salts, dissolved in as little water as possible, every hour, until the desired effect is produced; this effect being a large number of watery stools, even as many as fifteen or twenty if necessary. However, ordinarily eight or ten will have accomplished the object. If we have to deal with a general peritonitis it becomes necessary to greatly increase the dose, and I have administered an ounce of the drug at a time, for three or four doses, at longer intervals, and aided the action of the medicine by repeated and large enemas containing turpentine. There are times when the stomach will reject the salines, and then it is necessary to begin with very small doses—a quarter to half a spoonful given at short intervals and gradually increased as it becomes possible.

Where the drug cannot be retained at all, it is well to try some other; for instance, calomel. All of the text-books object most emphatically to the use of purgatives, and as Flint says: "clinical observation certainly furnishes no evidence of the usefulness of cathartics in the treatment of acute peritonitis." And so it has been with all others, since the days when Alonzo Clark first introduced his opium treatment. That cathartics produced no clinical evidence in the old days in their favor was simply because they were only used to the point of obtaining a passage of the bowels, and not to that of thorough depletion.

I have repeatedly found that on my second visit a patient was no better, and that only a few doses of the medicine had been taken, merely sufficient to secure one or two passages. Proper instructions being given, the next day has almost invariably seen the patient well advanced in convalescence. The extreme simplicity of this rational method of treatment finds its complete justification in its results. When it is going to control the peritonitis it does so at once and the physician is not left in doubtful ignorance of the final termination, but is early put in possession of information necessary in order that he may take further and more decisive steps, where it is deemed advisable.

The avocates of opium, by their different claims, show on how uncertain a basis this treatment rests. Clark has always insisted that to obtain any good whatever, the patient must be narcotized, it matters not how much opium is necessary, and to show how great must be the doses to accomplish this at times, he reports one case in which over two thousand grains of the drug were given within ten days. On the other hand, Musser, Meigs and others talk of a quarter of a grain of opium and a twelfth of a grain of extract of belladonna every two hours. In Clark's case the patient grew rapidly worse up to the fifth day, and then for a number of days there was no change of symptoms until the fourteenth when she "slept for the first time heavily, all other symptoms improving, bowels moved freely, ate well, tympanites subsiding." And yet it is thought that a quarter of a grain every two hours will accomplish the same result! I have myself given, in times past, from sixty to seventy grains of opium daily, for a number of days, without producing sleep or relieving pain or tympanites. With salines, however, as soon as the bowels have been gotten to move freely, the pain and tympanites are both relieved and the patient soon falls into a refreshing slumber. Opium meets but one indication in these troubles that the salines do not, and that is to assist in "keeping the bowels in splints" and so put the parts at rest. As far as this indication is concerned no drug is necessary, as the peritonitis itself accomplishes the object most effectually, as any one will shortly discover when he attempts to secure purgation. The amount of harm done by the rubbing together of the inflamed serious membrane is so insignificant in comparison with the good accomplished by the depletion that it is not worthy of serious consideration. The depletion of the blood-vessels soon disperses the inflammation itself; it causes the inflammatory excretions already thrown out to be absorbed and discharged and by the very motion it gives to the bowels prevents their adhesion. Opium has exactly the opposite effect. If in former times purgatives gave no clinical evidence of their value, certain it is that to-day the testimony in their favor is becoming overwhelming. If physicians will but give the treatment one or two fair trials, with the above principles and rules well in mind, it is safe to prophesy that ninety-nine out of every hundred will shortly become converts. It must not be understood that salines can be safely and indiscriminately used in every case of peritonitis. Such an understanding could only end in disaster and is to be carefully avoided. Nor is it well to imagine that in every case in which it is safe to use these drugs, they will cure the patient. There are some attacks of peritonitis in which neither purgatives nor any other drug will stop the progress of the inflammation, or save the life of the patient; and here it is that the surgeon must step in and interfere.

One of the beauties of the purgative treatment is that the surgeon has a chance of knowing when his time has arrived; which is something he never knows when opium has been used. A successful treatment of all cases, must depend essentially upon the recognition of the many antecedent pathological conditions that may be considered as casual, many of which must eventually or immediately be treated surgically. This being true, peritonitis is essentially a surgical disease (if it can be called a disease at all), and the surgeon should always, at least be early associated with the case and not called in simply to share the responsibility of the death.

The first record I can find of the abdomen being deliberately opened during and on account of an attack of peritonitis is the case of Dr. Wiltshire, in May, 1868. The patient, suffering from an ovarian tumor was seized with a violent attack of peritonitis. The abdomen was opened, the cyst found rotated and gangrenous and was removed. The patient recovered. For half a dozen years subsequently the experiment was not repeated, as far as known, and only after that to a very limited degree. The last half dozen years or so have increased our knowledge of the value of this operation as a life saving procedure, and now it is rapidly becoming a familiar performance.

The opening of the abdominal cavity and the dealing with the lesions found, together with the judicious use of purgatives, has put into the

hands of the profession a series of remedial agents, to which the vast majority of cases of peritonitis should succumb.

Many attacks arising from pelvic inflammatory disease, and recurring from time to time, can, as a rule, be controlled and cured quickly by the free use of salines. But it must be remembered that the diseased organs which caused the inflammation are still present and under the same circumstances will again and again set up other attacks, each one making the local trouble worse than before and rendering it more difficult of removal. This goes on until finally the adhesions are so extensive and dense, that perchance a loop or two of intestine becomes strangulated and the woman loses her life, either directly from one of the attacks of peritonitis which has become general or from a strangulated obstructed gut. Such cases are in no sense of the word imaginary. I could detail many; a recent example was a very prominent woman in social and charitable circles in Philadelphia.

This is one of the strongest reasons that can be advanced for the early removal of these pelvic troubles. If the disease is plainly present, and there are recurring attacks of peritonitis, the surest and quickest cure for all the trouble is to remove the disease. And so it is with appendicitis. We have all of us seen cases in which an inflammatory attack has occurred in the right iliac region, and which we have cured medicinally, only, however, in many cases, to see return again and again. Sometimes these all end in recovery, and no particular harm has been done. But how many of them eventually end in a fatal attack? And who is to say just when pus has been formed and when it has not? I have known one of the most thorough diagnosticians in Philadelphia, one who has seen hundreds of these cases, give the opinion that there was no pus, no great danger, and that the patient would get well without much trouble; he had seen plenty such; and yet at an operation the next day, three or four ounces of pus were found and the patient died that same night. We have all probably seen many similar cases. Where a patient has recurring attacks of peritonitis in the region of the cæcum, the only safe method of cure is to cut down and remove the diseased appendix, which will most always be found. That diseased and adherent appendix, pus or no pus, stands as a constant menace to the life of the patient, and should not be allowed to remain one minute longer than would be a Fallopian tube in the same condition, as almost surely an attack of peritonitis will eventually end the life of the individual.

Where there is pus in or near the peritoneal cavity and causing inflammatory trouble, it is simply folly to even attempt any other treatment than surgical. The moment there is good reason to suppose that pus is at the bottom of the attack or has subsequently complicated it, we have an absolute and imperative indication to operate, it matters little whether this arises from a pus tube, an abscess of the liver, an appendicitis, a suppurating ectopic gestation, or abscess from any other source.

It seems hardly necessary even to suggest that an operation was strongly indicated where a perforation of the intestine had taken place. And yet even within the past few months I know of several cases, with gunshot wounds, allowed to die from subsequent peritonitis, without an effort to save them. When extravasation of the contents of any of the hollow viscera has taken place, it matters little if it is fæces, urine, or bile, a violent peritonitis is the rule, and we can only be safe by acting on the supposition that it is inevitable.

With perforation in typhoid ulcers our ground is not so sure. The results have so far been anything but encouraging, and yet it is entirely too premature to come to any such conclusion as arrived at by Mears, in his paper on this subject in 1888. It must be remembered that laparotomy is almost absolutely the only chance for the patient under these circumstances, and a much more general trial should be made of the virtues of this treatment before condemning it. Perforating ulcers of the cæcum must necessarily be treated by surgical means. Only last year Dr. McMurtry, of Kentucky, demonstrated the soundness of this procedure in such a case occurring in a young physician, whom he saved by an early and timely operation.

It is not always easy to say whether or no, in perforating wounds of the parietes, the viscera are injured; not even is Senn's injection of gas sure to tell the tale correctly. But where such a wound has taken place and a peritoneal inflammation has followed, there is no room for hesitation or for medical treatment. In these cases we should always turn to the surgeon and to surgical methods.

All cases arising from traumatism, such as blows, falls, etc., should properly come under surgical management, for the reason that one can never be sure that some of the viscera are not ruptured or otherwise badly injured. It is true that without this direct injury to the internal organs the peritoneal inflammation may be excited, but the supposition is or always should be, where the symptoms are of such a character as to make it probable, that a rupture or laceration has taken place, and the patient should by an operation be given the benefit of the doubt.

With a given ovarian tumor, or a tumor from any other source, an attack of peritonitis is most decidedly a positive indication for laparotomy. It is perfectly true that such cases have time and again recovered, and subsequently gone through

a second or even a third attack safely, but that argues nothing in favor of waiting or allowing the disease to remain. Each and every inflammatory attack means more extended and dense adhesions, and each one means immediate imminent risk to the patient's life.

In cases of intestinal obstruction it is generally extremely hard to tell when peritonitis has developed; but, fortunately, the disease here is of such a character as to demand early surgical interference, peritonitis or no peritonitis, and no one need hesitate to operate on a case of intestinal obstruction at any time if he can be reasonably sure it be not one of fæcal impaction. He will, by so acting, save twenty out of twenty-five cases, where otherwise he would probably lose twenty out of twenty-five.

Cases of chronic peritonitis are best treated by the surgeon. As a rule some well defined disease is at the bottom of the inflammation, and it can best be cured by the removal of the cause. If no cause be found, then, as in the acute form, irrigation and drainage follow as a matter of course. The tubercular form of the disease is no exception to this rule, and daily experience is showing that many of these cases live on for years in comfort after an operative procedure.

We are all of us frequently called to see patients suffering from peritonitis, and after an incomplete examination, which the individual's condition renders necessary, are unable to find any disease to which the attack may be attributed. In such a case as this one would, a few years ago, naturally have hesitated to propose surgical interference; and so it is to-day. An effort should be made to relieve the trouble by medical means, and this will probably in many cases prove successful; but if medical means are going to do any good, they should do so very quickly. The records contain cases of recovery where the treatment has been kept up for a week or weeks, and the result has been in extreme doubt the whole time. But for one such case of recovery there are many deaths. Such a prolonged uncertainty could only have existed in the old days of opium. With our present treatment by purgatives twenty-four, or at most forty-eight, hours must in the majority of cases tell the tale. By this time the patient is or is not convalescent, this depending to a great extent on whether purgation has been produced or not. If purgation is produced and the individual is not beginning convalescence, then is the time for the bold use of the knife. Every moment after this is lost time, and the attendant can only excuse himself for neglect to turn to surgical means on the ground that he is afraid of surgical procedures.

The results of peritonitis are too terrible and its mortality too great for any false sentiment to stand in the way of an operation. Where we can control the situation we have no right to temporize on account of our own feelings or to humor the fanciful and ever varying whims of the patient and her friends. This always reluctant consent of friends is too often used as an excuse for our own hesitancy and lack of decision. In this, as in all other abdominal troubles, the ideal physician should have no feelings; or, if he has them, should keep them down with a strong and relentless hand. The patient should be a mere machine to him. That machine is out of order, and the only question should be, how may it be best and most surely repaired? In the great majority of cases some well defined disease will be found to be present and causing the inflammation. This should always be removed, if it can safely be done, and the resolution of the inflammatory attack will in the natural course of events follow the removal of the cause. It may sometimes be found advisable not to attempt too much at the primary sitting, on account of the condition of the patient, or it may be impossible to remove the cause. This, however, must be exceptional.

The time was when the presence of a peritoneal inflammation was a positive contra-indication to an operation. Even to-day there are many who will refuse to operate until the inflammatory attack has subsided. From the principles of treatment as laid down in this essay (drainage and depletion) it must be self-evident that the very details of the operation accomplish one of the desired results. If much of an enucleation is necessary and many adhesions are broken there will be free bleeding directly from the parts, and much good will be accomplished by this alone. Then again the operation gives the opportunity of applying the best of all treatments of any trouble whatsoever, viz: removal of the cause; but if the cause cannot be found, we are in a position to adopt a line of treatment at once both rational and necessary. As long ago as 1881 Flint wrote that "these measures, of course, are applicable only to cases in which the presence of septic, infective morbid products may be inferred. In many instances these products probably constitute the chief source of danger. The time may come when paracentesis abdominalis will have proved to be as applicable to certain cases of peritonitis as are thoracentesis, injections into the pleural cavity, and a permanent opening in the chest, in cases of suppurative pleurisy." The time has come, as Flint predicted, and if he simply means by his "septic, infective, morbid products" pus, then we are far beyond the time, and it is already an old and settled affair. Where the peritonitis is purulent, no one will dispute for an instant that the only possible chance for life is operation. But the inflammatory products thrown out from the peritoneum in every inflammatory attack are just as septic; it is simply a matter of quantity, and that is to a great extent

a matter of luck. If the quantity is too great for successful elimination, then the patient is lost. It not only is being absorbed and poisoning the blood, but is continuing, by its irritating action, to excite the inflammation, and more and more is constantly poured out into the cavity, until the patient is finally overcome.

After every abdominal section for peritonitis, whether the cause is found or not, the necessary complements of the operation are free irrigation and drainage. The irrigation washes away all the irritating and septic materials, leaves the membrane in a clean, soothed condition, and the drainage tubes stand ready to remove all new formations of these liquids. The tube not only gives the surgeon an opportunity to draw away the fluids, but also allows of free and frequent irrigations where they are considered necessary.

In treating any given case of peritonitis, unless it is decided to operate at once, the safest and most effectual treatment is by saline purges. When these fail, operation becomes necessary.

The abdomen being opened, the cause, when found, must be removed if it is possible. Whether removed or not, in the words of Price, "douching and flooding of the abdomen are absolutely necessary, and drainage is the bulwark of the whole procedure."

THE RELATIONS OF THE PHYSICIANS OF THE UNITED STATES TO THE NEXT CENSUS.

BY JOHN S. BILLINGS, M.D.,

SURGEON U. S. ARMY, IN CHARGE OF VITAL STATISTICS, STATISTICS OF SPECIAL CLASSES, AND STATISTICS OF CITIES; ELEVENTH UNITED STATES CENSUS.

[*Written for this Edition.*]

It is, no doubt, well known to all readers of this Journal that the Eleventh United States Census will be taken on the 1st of June, 1890, and that an attempt will then be made to obtain, not only a record of the sex, age, color, birth-place, occupation, etc., of each person then living in the United States, but also a record of all who have died in this country during the year beginning June 1, 1889, and ending May 31, 1890.

To every known physician residing in any locality in the United States where there is not a complete registration of deaths based on burial permits issued only on the certificate of a physician as to the cause of death, a little book has been sent by the Census office, with the earnest request that he will record therein, according to the form given, each and every death occurring in his practice during the Census year, and will, at the end of the year, either return the book direct to the Census office in a franked envelope sent for that purpose, or will hand the book to the enumerator who will call at his house or office to record him as a resident of the United States.

It has not been possible to ascertain the name and address of every physician living where there is no complete registration, but it has been done as far as possible, by the sending of circulars to all postmasters throughout the country asking for lists of physicians, etc., and if any one who has not received such a register, will so inform the Superintendent of the Census, or myself, giving his name and Post-office address, a copy will be promptly sent him.

Each enumerator in those districts, towns or States in which there is not known to be a complete and reliable registration of deaths at the time of their occurrence, will be instructed to inquire of each family whether any of its members have died during the Census year, and if so, to record in a special schedule of deaths, the name, age, sex, color, birth-place, occupation, cause of death, etc., for each descendent so far as he can ascertain it. As the record of death thus obtained must often be incomplete and inaccurate, especially as regards the cause of death, the enumerator will be instructed to call upon the physicians living or practicing in the locality where he has been at work, and to show them his schedule of deaths, and ask them to correct or complete it, as far as possible, for which purpose a special place is provided on the schedule.

This, however, is by no means all that the Census will ask of physicians. Upon the schedules of the living population, the following points are to be inquired into and noted by the enumerator with reference to each person, viz: 1. Name; 2. Whether a soldier, sailor, or marine, during the Civil War (U. S. or Confederate), or widow of such person; 3. Relationship to head of family; 4. Color; 5. Sex; 6. Age; 7. Whether single, married, widowed or divorced; 8. Whether married during the Census year (June 1, 1880, to May 31, 1890); 9. Mother of how many children, and number of these children living; 10. Place of birth; 11. Place of birth of father; 12. Place of birth of mother; 13. Number of years in the U. S.; 14. Whether naturalized; 15. Whether naturalization papers have been taken out; 16. Profession, trade or occupation; 17. Months unemployed during the Census year (June 1, 1889, to May 31, 1890); 18. Attendence at school (in months) during the Census year (June 1, 1889, to May 31, 1890); 19. Able to read; 20. Able to write; 21. Able to speak English, if not, the language spoken; 22. Whether suffering from acute or chronic disease, with name of disease and length of time afflicted; 23. Whether defective in mind, sight, hearing or speech, or whether crippled, maimed, or deformed, with name of defect.

In each case in which questions 22 or 23 are answered in the affirmative, the enumerator is to transfer the name to a special supplementary schedule provided for the purpose, and proceed to

obtain additional data with regard to the particular physical or mental defect or disability reported. Of these supplementary schedules there are five different kinds: one for the insane; one for the idiotic and feeble minded; one for those blind in one or both eyes; one for the deaf and for deaf mutes; and one for the sick, crippled, maimed or deformed who do not belong to either of the preceding four classes.

It will be seen that if it were possible to get these supplemental schedules properly filled out for each of the special classes of the people affected with physical or mental defects; bearing in mind that for each person so affected the data on the population schedule as indicated above, will also be obtained; we should have a vast amount of data of the greatest interest and value to the science and practice of medicine and to physicians, biologists, sociologists and sanitarians. We could compute from such data the proportion of disease, and physical and mental defects pertaining to different races, and ascertain whether the Native American, the Negro, the Mulatto or mixed blood, the Irish, the German, the Scandinavian, the Bohemian or the Italian, are specially liable to certain forms of disability, or whether we are receiving from any particular foreign country, an undue proportion of a helpless and dependent class. Taken in connection with the death record, we could tell something of the liability of certain localities to certain forms of disease or disability; the influence which the Civil War has exerted on the health, strength and productive capacity of those who took part in it; the needs for special asylums, schools, hospitals, etc., for these special classes in the several States; some of the relations between physical and mental defects, and heredity, injury and preventable causes; and many other points which I need not here detail.

But it is impossible to get these supplementary schedules completely or properly filled out by the enumerator alone. Of the 40,000 enumerators, who will be employed in taking the census during the first half of June next, a very large proportion will be men who know little and care less about the matters referred to in these special schedules. They will receive extra pay for each special record which they make, but the rate of compensation is not enough to induce them to take much time in inquiring about any particular individual.

The only members of the community who can properly answer some of the questions about the insane, the blind, and the crippled or deformed, are the physicians; these questions being mainly what is the form or degree of the insanity, disease of the eye, or deformity which exists.

It is because the completeness and accuracy of these vital statistics are so important, and because physicians alone can furnish some of the information required, that an appeal is made by the Census authorities to every physician in the United States to assist in this matter by replying to circulars of inquiry which will be sent them, and by advising the enumerators who will call upon them as to the way to fill out and complete the special supplementary schedule above referred to.

Probably one-half of the physicians of the country will respond promptly and cheerfully to these requests for information provided they are so made as to involve the least possible trouble in replying, and will do this without being specially urged thereto.

More than two-thirds of the remainder will not reply, unless specially and repeatedly solicited, not because they have any special objection to answering, but because they put it off until a more convenient time, forget it, think it wont make much difference if one man does not answer, etc.

There are, however, a certain number of physicians who will not reply because they will not furnish service or advice to the Government without compensation. Direct compensation in money cannot be given, and it is impossible to make any definite promise that the Reports and Tables which are to be compiled for the coming Census shall be furnished to all those contributing information. I can only say that I fully believe that the Vital Statistics and Statistics of the Special Classes will be fully compiled and ready for the printer within a year after the taking of the Census; that there will be no unreasonable delay in printing them; and that for every physician who contributes special information on these subjects, and who notifies me in the latter part of this year, that he desires to have a copy of either the Report on Vital Statistics or the Report on the Special Classes, when printed, I will have his name and address placed on a list which shall be forwarded to the Superintendent of the Census, with the recommendation that estimates be sent to Congress for printing a sufficient number of copies to supply each person named on the list, and, so far as the Superintendent of the Census is concerned, I am confident that this recommendation will be approved. I do not, however, ask for the coöperation and assistance of the physicians of this country, upon the grounds of this promise, but upon the same grounds upon which all railroads, banks, manufactories, and citizens generally are asked to furnish special information for the Census, viz.: That it is for the good of the whole people that this information is to be sought, compiled and published; that the amount of time and labor asked from each individual is very small; and that it is in the power of each physician to contribute something to results which are of great importance to medicine and sanitation in this country.

It is impossible to pay for this assistance; the means for so doing have not been granted by Congress; nor will it be possible to obtain an appropriation for the purpose. At the request of the Superintendent of the Census, I have taken charge of the Vital Statistics, the Statistics of the Special Classes, and the Statistics of Cities, including their water supplies, sewerage, streets, police, markets, cemeteries, etc., and shall do my best to gather all the information possible, to have it properly correllated and tabulated, and to have the results promptly published and made available for general use. And as I am doing this without any compensation whatever, except the satisfaction which fairly complete and reliable results will afford me, I do not hesitate to appeal to the physicians of the country, individually and collectively, to aid in this matter without reference to compensation, either in money or in publication.

Let us join to secure as complete a Record as possible, not only of the Vital Statistics of our country, but also of that part of our people who are physically and mentally affected, who are specially in need of aid and care, and for whom in many cases special provision must be made by the State, and let us do this because it is a good and patriotic thing for every citizen to do, and because, as members of that profession whose relations to modern science are the most intimate, we desire to increase knowledge.

THE EVOLUTION OF INFECTION. A STUDY OF SOME OF THE LIMITATIONS OF PARASITISM.

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[*Written for this Edition.*]

"Round about the accredited and orderly facts of every science there ever floats a sort of dust-cloud of exceptional observations of occurrences minute and irregular, and seldom met with, which it always proves less easy to attend to than to ignore. . . . .

"Each one of our various *ologies* seems to offer a definite head of classification for every possible phenomenon of the sort which it professes to cover; and, so far from free is most men's fancy, that when a consistent and organized scheme of this sort has once been comprehended and assimilated, a different scheme is unimaginable."—WILLIAM JAMES.

"The longevity of an organic type has, on the whole, been in inverse proportion to its perfection."—GEIKIE.

"Their simplicity has been their salvation. A high organization brings with it many disadvantages, for the more complex the structure, the more liable it is to get out of gear.

"Ever on the alert against enemies, man's fancy multiplied them on all sides.

"What man fears, but is powerless to control, he seeks to appease."—E. CLODD.

With this rather long text I would endeavor to present some of the more obvious points which bear upon the evolution of dependent plants and animals.

There are very few students of nature to-day who are not imbued with the philosophy of evolution. Every isolated fact in the life of an organism takes on an added interest when viewed in its relations to the great principle of natural selection. From the standpoint of the evolutionist, the subject of parasitism is a very extensive one, and the relations of the pathogenic microörganisms to their host occupy only a limited district in this great province of thought.

(*a*) *Parasitism intimately related to the Law of Natural Selection.*

It can be fairly presumed that those relations of conviviality which we see existing between mutualists, between messmates, and between host and parasites, are subjects for natural selection. Indeed, the study of the fertilization of flowers shows us the most intimate dependence of a large number of plants upon their animal parasites, and this, too, accompanied by changes in the essential organs of those plants which produced forms most confusing to the earlier botanists. So mutually beneficial is the association of certain species, that they have been called mutualists. These relations are so far-reaching and intricate that they surprise us into the belief that the destruction of a single parasitic species would overthrow the equilibrium of animal life and result in changes little short of a biological revolution. I may cite the classical observation of Darwin:[1]

"In several parts of the world insects determine the existence of cattle. Perhaps Paraguay offers the most curious instance of this; for here neither cattle nor horses nor dogs have ever run wild, though they swarm southward and westward in a feral state; and Azara and Reuyger have shown that this is caused by the greater number in Paraguay of a certain fly, which lays its eggs in the navels of these animals when first born. The increase of these flies, numerous as they are, must be habitually checked by some means, probably by other parasitic insects. Hence if certain insectivorous birds were to decrease in Paraguay, the parasitic insects would probably increase; and this would lessen the number of navel-frequenting flies — then cattle and horses would become feral, and this would certainly greatly alter (as, indeed, I have observed in parts of South America) the vegetation; this again would largely affect the insects; and this, as we have just seen in Staffordshire, the insectivorous birds, and so onward in ever increasing circles of complexity."

(*b*) *Parasites are usually found Among the Smaller Organisms.*

The greater number of parasites are found among the lesser plants and animals. This is as

[1] The Origin of Species, sixth edit., part I, sec. 99.

we should suppose. The parasite deriving its support from a smaller organism would soon destroy its host, and itself perish in turn. It is secure in its position of parasitism only while it takes from its host no more than can easily be spared. The condition of parasitism then exists best when the assistance which the parasite demands, can be granted without material injury to the host, or, when the parasite is actually beneficial, or even essential to the existence of the host species.

(*c*) *Time Necessary to Variation and Adaptation.*

There is scarcely any end to the variations and modifications which an organism may undergo by natural selection, provided a sufficient time be allowed for the changes to be undergone. And, moreover, there is no part of an organism which may not be modified by this agency if such changes become advantageous to it in the struggle for existence. When, therefore, we find an adaptation of great complexity we must assume that the relations requiring such adaptation have been in action a proportionately long time. This is not only the case in the adaptations of an organism to its lifeless environments, but it is in the same degree the case in the adaptations existing between host and parasite or between messmates.

One of the most remarkable of these convivial adaptations is related by Charles Darwin in regard to the slave-making ants.

"This ant (*Formica rufescens*) is absolutely dependent on its slaves; without their aid, the species would certainly become extinct in a single year. The males and fertile females do no work of any kind, and the workers or sterile females, though most energetic and courageous in capturing slaves, do no other work. They are incapable of making their own nests, or of feeding their own larvæ. When one of the old nests is found inconvenient and they have to migrate, it is the slaves which determine the migration, and actually carry their masters in their jaws. So utterly helpless are the masters that when Huber shut up thirty of them without a slave, but with plenty of food which they liked best, and with their own larvæ and pupæ to stimulate them to work, they did nothing; they could not even feed themselves, and many perished of hunger. Huber then introduced a single slave (*Formica fusca*), and she instantly set to work, fed and saved the survivors, made some cells, attended to the larvæ, and put all to rights."

Such an adaptation of a whole species to an artificial condition would be wholly anomalous and unexplainable were it not for the fact that related species have been studied in distant localities that show a less complete adaptation to any dependence upon the condition of slavery. This complicate social arrangement probably arose by accident. The larvæ of neighboring colonies were stolen for food. They were hid away until hunger should require them, some of them hatched out and were fed and brought up, and proved useful servants. The workers of such colonies had more time for warfare and pillage, and so the number of slaves went on increasing from generation to generation with further adaptation to the new mode of life until the instinct for robbery took the place of the instinct for work. It must have required a long time to change the habits and instincts and structure of a whole species in this way. Among the Swiss *Formica rufescens* slaves are a necessity to the existence of the species. In England the *Formica sanguinea* has slaves only as a convenience, and its workers attend to a large share of the work themselves. Among other species in all parts of the world slaves are tolerated only as waifs and they enter very little into the economy of the community.

Time, then, is a most important factor in the action of natural selection, and any condition of parasitism is a very ancient one indeed which is so perfectly developed that he life of the parasitic species or the life of the host species is dependent upon its uninterrupted perpetuation for its existence.

(*d*) *More Complex Forms Vary more Rapidly than more Simple and Primitive Forms.*

The antiquity of the parasitic condition, however, does not correspond exactly with the complexity of the morphological adaptation between species, for we find that among the flowering plants adaptations have been secured limiting the fertilization of a species, which adaptations render the extinction of a single species of insect in a neighborhood equivalent to the extinction of the same plants in the same area. It is evident that the variation of the more complex plants is much more rapid and extensive than the variations of lower forms, for we find that some of the lowest forms of plants and animals have existed from the earliest geological epochs, while the more complex forms rarely present evidence of so great a longevity.

(*e*) *The Peculiar Condition of some of the Thallogens, being Devoid of Chlorophyl, Renders a Saprophytic or Parasitic Condition Necessary to Them.*

We are accustomed to look upon chlorophyl almost as an essential to vegetable existence, yet there are a great number of thallogens which are perfectly devoid of this substance. Those plants which contain chlorophyl are able to elaborate from the stable inorganic constituents of earth and air, with the help of that force which they derive from the sun's rays, organic, unstable compounds of a very complex molecular condition. Those plants which are devoid of chlorophyl must depend for their vital force not upon the sun's rays, but upon the energy released by the decomposition of those molecules of unstable equilibri-

[2] The Origin of Species, p. 412.

um which have been built up in the growth of the chlorophyl-producing plants and in that of animals.

Thus we see that by their very nature these plants devoid of chlorophyl are eminently adapted to a saprophytic or parasitic existence; in fact any other mode of life is shut off to them. In this class are found the bacteria.

(*f*) *The Size of the Smallest Microbe is Adequate to the most Extensive and Positive Adaptations and Differentiations.*

While adaptations of a most complex character are granted in the case of such large parasites as the tape-worms, the flukes and the itch insect, the same possibilities have been denied to such unicellular plants as the bacteria. The micrococci average about one micron in diameter. To the best objectives they have about as much individuality as a single star had in the field of the telescope before the introduction of the spectroscope. Does this prevent the greatest morphological and physiological complexity? Not at all. The spermatozoa of man is not much larger and yet it carries with it peculiarities of form, color, voice and psycological functions which are as complex as human life. Surely if this is the case, we do not need to question the possibility of sufficient room in a microbe for all the complexity of structure and function which the argument of this paper demands.

That there is no corresponding differentiation of structure to be seen by the most powerful microscope does not matter, for light is so gross a thing that nothing more could be expected. The extreme diameter of a micrococcus is say one micron; the length of a wave of light in the middle of the visible spectrum is about ½ a micron (E = .5269 microns). What more can be expected with such a measure? Our only hope in this direction lies in the use of much shorter waves which are far above the lavender and at the limit of photographic recognition.

(*g*) *Definitions of the Degrees of Parasitism.*

When a parasite is wholly dependent upon its host for its existence, it is said to be an obligate parasite; when a parasite is able to live outside the host species upon dead animal or vegetable matter only with difficulty, it is called a faculatative saprophyte; and when a species which ordinarily lives a saprophytic existence is able under favorable circumstances to become a parasite it is called a faculatative parasite.

I will here refer only to obligate and to faculatative parasites, for, although there are equally interesting relations existing between the faculatative saprophytes, in the consideration of one of them I have already occupied some of the time of this society.[3]

[3] Secondary Mixed Infection in Typhoid Fever. Chicago Med. Jour. and Examiner, 1888.

(*h*) *Illustration of the Limitations of Obligate Parasites by the Common Tape-worms*

Our tape-worms are examples of obligate parasites. They cannot live outside the bodies of their hosts. They depend for their existence upon the fact that the carnivora devour the herbivora. The eggs of the tape-worm are innumerable. They are scattered by the carniverous host in its fæces. The rains wash them into little pools and brooks, and scatter them upon the foliage and grasses. The herbivorous host takes them into its stomach in the water it drinks, or on the grass and foliage it eats. The warmth and secretions of the stomach free the embryos from the imprisonment of their egg shells. They cling to the wall of the digestive tract until they gain strength to force their way into the blood currents. There they remain until they are carried to the smallest capillaries, in which they establish themselves, and, for some unknown reason, they prefer the muscles. Here they go into a sort of pupæ state, to await the time when their herbivorous host will be overtaken and devoured by a carnivorous enemy. In the stomach of the carnivorous second host, the wall of the pupæ is dissolved. They are provided with hooks which attach themselves to the villi, or deeper structures of the intestines. Here they are bathed in a well digested nourishing material until they grow to a relatively enormous size and produce from each segment of their bodies millions of eggs to pursue a similar struggle for existence. What an enormous number of eggs perish because they never come into the proper host, what millions of encysted pupæ die in their calcified cocoons, what thousands pass through the intestinal canal without finding a proper place to attach themselves, all that a single mature and sexually perfect tape-worm may find a place in which to vegetate and procreate. What a wonderful cycle of existence is this, and what innumerable ages must it have required to develop out of the accidental ingestion of living independent articulate such a complex and obligate parasite. And what can be said of the parasites of the cat, which live the first part of their existence only in the mouse, and of the tenias of the dog and wolf, whose cysticurcus form is found in rabbits. How long did it require these specific forms to develop from original generic species? Unfortunately we can never know, but we must assume that it has been a very long time.

(*i*) *Our Measure of Time Derived from the Changes of Animals and Plants Under Domestication.*

The relation of man to the domestic animals furnishes us the only approximate measure of the rapidity of these changes. Under domestication a few mammals, birds, fishes, insects, mollusks, and some vegetables, have become so modified that they cannot be referred to any undomesticated species. How far back must men have be-

gun to cultivate the banana, which now is seedless and would perish as a species without his care? Surely so long ago that we need some other measure than the century. But to have evolved a parasite with such complex and limited relations as those of the tenia must have taken a much longer time. And how shall we explain the fact that the *Temocephala chilensis*, a small parasite on the legs of certain fresh water crustaceans of Chili, occurs identical in species in the Philippines and in Java on other articulates? Wallace has justly observed that such cases ought to be regarded as proof of the hypothesis that those types which have occasioned the similarity of remote faunas must have had a very long historical duration, persisting, very likely, through *many geological epochs.*[4]

(*j*) *The Origin of the Infectious Diseases. Three Examples: Tuberculosis, Syphilis, Measles.*

This, perhaps, calls forcibly enough to our minds the antiquity of these forms of parasitism. Let us for a moment consider the origin of such forms of parasitism as tuberculosis and the other acute and chronic infectious diseases of man and animals. While some of them are still under dispute, tuberculosis, syphilis and measles are recognized as entities, and they are considered by all fair-minded and unprejudiced scientists and physicians as due to distinct and specific parasites. These parasites are, so far as we know, specifically different from any non-parasitic organism to which they are generically related.[5] Nor can it for a moment be supposed that the parasitic bacteria are in any other category in relation to the influence of natural selection than the parasites which belong to more highly differentiated orders of life. Indeed, the very fact that the lowest and most slowly varying vegetables have become obligate parasites is evidence of an association greater in time than we should consider necessary for the evolution of a much more complex relation existing between the more rapidly varying articulates or infusoria.

It appears that the bacillus of tuberculosis is unable to grow on any accidental or artificial media under any presumptious natural conditions of temperature and external surroundings. It is able to multiply in man and in some other mammals, and in a few related vertebrates. Therefore, we may presume that, should it be deprived of a living host even a day beyond the few months during which its spores might retain vitality, the species would become wholly extinct and the world would be free ever afterwards from the ravages of this dreadful scourge. The bacillus of tuberculosis is then an obligate parasite of the warm-blooded animals.[6] When we consider what specific difference means, and how perfectly the bacillus of tuberculosis manifests this difference, and when we see how great is its geographical distribution, we are compelled to go back far into the present geological epoch, and probably beyond it, for its origin.

In the bacillus of syphilis we have a still closer obligate parasite. It is confined to the Primates alone. All attempts to convey it from man to animals other than the Quadrumana and to artificial media have been equally unsuccessful. Here, then, is a peculiar parasite which finds in the intimate structure or other bodily conditions of all animals except a limited class such conditions as are altogether inimical to its reproduction. Since it is a parasite of as simple structure, and since it varies as slowly as tuberculosis, we must look still further back into the past for its origin from independent forms.

In measles we have an example of a parasite which is not only confined to a single species, but for the most part to the young of that species. Perhaps the most unexplainable feature of this parasitic disease is the fact that one attack renders the host immune to subsequent invasion. This fact is phenomenal and, so far as I know, wholly without explanation.

(*k*) *Obligate Parasites may not be Destructive Parasites.*

Looking upon these obligate parasites of man as of such ancient association, going back beyond the present geological epoch for the beginning of syphilis, tuberculosis, measles, scarlet fever, small-pox, whooping-cough, leprosy, and every form of tape-worm, how is it possible that man has been able to withstand the attacks of so many enemies for so long a time? The very fact that he has survived, and that these parasites are unable to exist in any other media than his living body, is conclusive proof that they are not essentially destructive parasites; for with the destruction of the host species occurs the destruction of the obligate parasite. Such a proposition appears to be axiomatic, but axioms occasionally need to be formulated. Given abundant opportunity of contagion, a destructive obligate parasite is inconceivable. It is possible only when its destructiveness does not interfere with the reproduction of the host species, as after the reproduction act has been performed.

(*l*) *Facultative Parasites may be Destructive Parasites.*

How different from the mild course of syphilis, tuberculosis, leprosy and the acute infectious diseases is that of tetanus, anthrax, malignant œdema and other forms of gangrene and the various wound diseases. Among domestic animals, when encouraged by overcrowding and filth, the saprophytic bacteria produce equally destructive diseases. Take, for example, Texas fever, hog cholera and ranch-brand. So, too, is it with yellow fever, Asiatic cholera, malaria and diphthe-

[4] Semper, Karl, Animal Life, as Affected by Natural Conditions of Existence. New York: D. Appleton & Co., 1881, p. 293.

[5] Occasional exceptions have been observed. v. Sibley, Tuberculosis in Vertebrates. The Journal of Comparative Medicine and Surgery, v 4, p. 318.

ria, which are doubtless facultative parasites of man. To these rare and accidental parasites we have in our skin and mucous membranes a most careful and adequate protection. By the action of natural selection the door to invasion has been closed, but within we have no adequate means of defense; so when infection does accidentally take place and the usual saprophytes become parasites, the chances are greatly against the host in the conflict that ensues. The facultative parasites may or they may not be destructive, and it is probable that against but few of them has the action of natural selection rendered us indurate.

(*m*) *The Destructiveness of Common Obligate Bacterial Parasites Shown to be Apparent Rather than Real.*

While we are accustomed to look upon syphilis, tuberculosis and leprosy as excessively destructive diseases, a moment's consideration is enough to clear our minds of this traditional notion. Syphilis in the strong and healthy Caucasian frequently runs the first and second stages of its course without recognition, and does not, therefore, interfere with procreation. When the infirmities of age confine the patient to unfavorable surroundings and habits of life, the tertiary symptoms come on with the reduced vitality and nutrition. Fatal or destructive syphilis in the otherwise well and healthy is rare. In children and in poorly nourished young people, and in those suffering from chronic diseases, it frequently appears as a terminal affection.

Tuberculosis in the lymph glands of the neck, in the bones and joints, in the ear, and even in the peritoneum, is not very destructive. It is frequently followed by recovery. Even in the lungs tuberculosis may run a chronic and rather harmless course, and interfere very little with the reproduction of the species. It is only after pyogenic infection of the tubercular tissues of the lungs or other areas that sepsis and symptoms called "hectic" appear. This sepsis is then the destructive factor, as it is in wound reaction.

Leprosy is the closest obligate parasite of man so far observed. The bacillus of leprosy bears a remarkable morphological relation and staining reaction to the prime factors of tuberculosis and syphilis. It is almost never a destructive disease, and it appears only in those who could have already accomplished the reproductive act; therefore it does not interfere with the perpetuation of the species. It is conveyed by contact, but only with difficulty, and there is evidence that it is not necessarily hereditary; that is to say, healthy children may be born of those who are suffering from leprosy. The attendants on persons suffering from leprosy are not often affected with the disease, but often enough to demonstrate its contagiousness.

(*n*) *Immunity and Protection Diminish the Destructiveness of Parasitism.*

In certain of the infectious diseases one attack protects from subsequent invasion. This is the case not only with the obligate bacterial parasites, but in a greater or less degree with the facultative parasites. It is interesting to compare the destructive power of our principal infectious diseases, the ease of infection, and the acquired immunity to succeeding invasion. In measles we have a comparatively harmless disease, the greatest ease of infection, with subsequent immunity. Scarlet fever is not so harmless, is less contagious and equally protective. Small-pox is more destructive, less contagious and equally protective. Yellow fever is far more destructive and far less contagious, and equally protective. Leprosy conveys no immunity, for the disease rarely terminates in recovery, but the infection is accomplished with the greatest difficulty and the spread of the disease is slow. Syphilis is not very destructive, it has a difficult but certain method of infection, and one attack does not so surely protect against subsequent recurrence. Instances of this kind could easily be multiplied, bringing in other factors which act in producing immunity or protection or physiological resistance, all brought about by the obvious necessities of the law of the survival of the fittest and that of heredity.

If a few indulgent and patient readers have followed my arguments to this point, the suggestion of a possible practical application will be redundant. It is obvious that a comprehension of these limitations of parasitism would not only direct future biological research, but materially assist in suggesting therapeutic measures. They also furnish a perspective in which limited data may be studied by the side of more complete facts, and they offer the greatest promise of a rich harvest in a neglected field of thought.

However we may look upon some of the minor points of this argument, or whatever exceptions we may take to the illustrations, we may fairly agree upon the following predications:

1. All obligate parasites are without exception examples of very ancient parasitism, and what is of more practical moment, they are necessarily non-destructive to the host species.

2. The destructive action of the obligate parasites is only manifested toward the weaker individuals of the race, and therefore they are a factor in the evolution of a strong and wise and morally temperate nation.

3. The dangerous consequences of secondary infection with destructive facultative parasites is emphasized, and the physician is taught that as happy results may be expected in the antiseptic treatment of the infectious diseases as have followed similar indication in the treatment of wounds.

4. The great field of expectant medicine lies in the treatment of diseases due to obligate parasites, while the great field of preventive medicine

is to be found in providing against infection with facultative parasites.

5. The use of quinine in malaria and the efficacy of mercury in syphilis will always encourage a careful lookout for specifics for other parasitic diseases, especially in those that manifest symptoms of infection of the blood currents.

6. The artificial immunity to small-pox which is acquired by vaccination is suggestive of possibilities which will be applicable to all those diseases in which one attack protects from subsequent invasion.

7. Some of the obligate parasites are shared by man with the domestic animals, and it is possible, and even probable, that in some diseases they are the most frequent source of infection. The study of the diseases of animals is indicated, and there can be little doubt that it will be followed by a diminution in the number of cases of those diseases which are common to man and domestic animals.

8. Conditions which clinically seem to be entitled to a single place in our nosological catalogue may not be entities or identities, and therefore conflicting biological studies of parasitic findings in these cases may be harmonized by a rearrangement of our nomenclature.

9. Alarmists have nothing to fear in new contagious diseases, for it is probable that all unrecognized obligate parasites are harmless, though perhaps exquisitely contagious or epidemic.

MEDICAL PROGRESS.

EXPERIMENTAL INVESTIGATIONS CONCERNING SUPPURATION.—In a recent thesis DR. J. DE C. HOLMFELD discusses the causation of suppuration, and reaches the following conclusions: In all cases of warm abscesses in men submitted to bacteriological examination the existence of microörganisms in the pus has been demonstrated. These microörganisms are few in number and well marked. Rosenbach has described them under the following names: Staphylococcus pyogenes aureus, staphylococcus pyogenes albus, micrococcus pyogenes tennis, streptococcus pyogenes. But besides the suppuration due to the presence of microbes, we are able to produce in animals suppuration that is purely chemical and entirely independent of microbes. The author has inoculated, with the greatest antiseptic precautions, the following substances: Essence of turpentine, petroleum, chloride of zinc in 10 per cent. solution, glycerine, and nitrate of silver in 5 per cent. solution. These substances, which produce no appreciable effect upon the rabbit, provoke considerable suppuration in the dog. The microscope discovers not the slightest trace of microörganisms in this pus; bouillon and gelatine remain absolutely sterile. These experiments prove that the suppuration is by no means dependent upon the presence of microörganisms in the tissues. The author therefore raises the question whether the suppurative action of the pyogenic microörganisms in the tissues is not dependent upon the presence of irritating substances in the products of secretion or in the bodies of the microbes themselves, for we are able to extract from the cultures and from the body of the staphylococcus aureus several chemical substances which are capable of producing a very pronounced pyogenic effect. The author concludes that acute suppuration should be considered as the result of chemical influences upon the organism.—*Gaz. Méd. de Paris.*

INFECTION BY THE TYPHOID BACILLUS WITHOUT INTESTINAL LESIONS.—VAILLARD and VINCENT have reported to the *Soc. Méd. des Hôp.* the case of a young soldier who was first attacked by a light case of *la grippe*. Five days after recovery he was taken with a severe cephalalgia, acute lumbar pains, cerebral excitement and high fever (40°). These symptoms, to which was added a profuse epistaxis, persisted for some days without change, when coma vigil ensued, with complete insensibility and contractions of the muscles of the neck and pharynx; there was also complete constipation. After a short period of amelioration the cerebral symptoms regained their former intensity and the patient died ten days after the beginning of his sickness. The autopsy disclosed an intense congestion of the spinal and cerebral meninges, which in places exhibited moderate serous infiltration. The lungs were congested, the spleen tumid and soft; there were *no intestinal lesions*. Cultures made from the splenic pulp, blood from the lungs, particles from the spinal marrow and medulla, all showed a bacillus similar to the typhoid bacillus, resembling it in not staining by Gram's method, and developing upon different culture media, particularly upon potato. Its characters were exactly identical with those of Eberth's bacillus.

A streptococcus from the spleen and meningeal exudate has been found which has been described in the fatal cases of *la grippe* coming under the observation of the authors. In the present case there was evidently a mixed infection from the streptococcus and typhoid bacillus. The interest in the case centres not so much in the simultaneous invasion of the organism by two forms of pathogenic microbes, as in the discovery of the typhoid bacillus in the viscera of a subject who succumbed to processes differing from those of enteric fever, the autopsy showing not a single intestinal lesion.

Are we to conclude from this that the bacillus differentiated by Eberth and studied by Gaffky, Chantemesse and Vidal, and universally accepted

as the pathogenic agent of typhoid fever, may be commonly found in subjects who have died from quite another affection? This hypothesis is inadmissible and in absolute contradiction to well established facts. It is more legitimate to admit that the patient succumbed to a typhoid infection, not pure, but mixed, an infection which appeared without the usual train of symptoms and lesions. Banti has reported a case of ileo-typhus without appreciable intestinal lesions; the spleen and mesenteric glands plainly showed the typhoid bacillus. Adenot, too, has reported a case of meningitis without intestinal changes, which appeared to him to be due to the same organism, although there was room for doubt.

From these facts it follows that infection from the typhoid bacillus may occur and end fatally without leaving the intestinal lesions which have been regarded as pathognomonic. The pathogenic agent may spend its action upon various organs, and the disease may assume clinical forms differing greatly from classical types. In these cases, so completely disguised, the true character of the infection will remain unrecognized, with fatal results, if we do not have recourse to bacteriological investigation of the spleen and other viscera. Researches of this character will serve, perhaps, to extend the domain of typhoid infection.—*Le Bul. Méd.*

PERUVIAN BALSAM IN THE TREATMENT OF TUBERCULAR AFFECTIONS.—KITTEL, in Professor Heineke's clinic at Erlangen, fourteen cases of caries and six cold abscesses were treated with Peruvian balsam according to Landerer's method. The balsam seemed to possess no advantage over iodoform and it was especially doubtful whether its use resulted in a cure of tubercular affections of the bones so that operation became unnecessary. Intra-muscular injections of the remedy produced no effect upon tuberculosis. Tests of its powers of disinfection were fairly satisfactory. —*Cent. für Klin. Med.*

MURIATE OF PILOCARPIN.—The muriate of pilocarpin has come into general use of late in England and is employed under a great variety of conditions. In recent periodicals it has been recommended.

1. To abort colds; the internal administration of 0.02 grm. is said to be sufficient to allay the various disagreeable sequelæ and to restore the patient within a few hours to his usual condition of health (*Lancet*, Jan. 4, 1890).

2. To control the convulsive attacks of hystero-epilepsy; for this purpose it is given subcutaneously in doses of from 0.01–0.02 grm. (*Journ. of Nerv. and Ment. Dis.*, April, 1889).

3. To combat the various forms of convulsions in children; in children under one year it should be given in doses of from 0.002–0.005 grm. three times a day *per rectum* (*Brit. Med. Jour.*, Jan., 1890).

4. To relieve many forms of deafness; Prof. Bronner (*Lancet*, Nov. 28, 1889) has frequently observed restoration of the normal functions of the ear from the subcutaneous application of pilocarpin. According to him the following are the conditions most susceptible to this mode of treatment: (1) deafness the result of acquired or hereditary syphilis depending upon changes in the middle or internal ear, (2) deafness from hæmorrhage or exudation in the inner ear, (3) cases of chronic catarrh with recurring exacerbations, (4) dry catarrh in its incipient stages.

On the Continent pilocarpin has been largely used for the last eight years and for the most part with good results especially in syphilis, puerperal eclampsia, cerebro-spinal meningitis, tetanus, diphtheria, dropsy from various causes, diabetes, scarlet fever, diseases of the skin and influenza. Its use in heart diseases is apt to be attended with collapse.—*Corres. für Schw. Aerzte.*

DISAPPEARANCE AND RETURN OF TUBERCLE BACILLI IN THE SPUTUM.—Upon the basis of bacteriological investigation WINTERMITZ concludes that an incomplete disappearance of tubercle bacilli from the sputum renders a new exacerbation of the process possible, although the ordinary clinical aspect of the case may be favorable; while even a complete disappearance of the bacilli does not exclude a return of the destructive processes. For these reasons he ascribes the greatest importance to the character of the clinical signs, while positive and negative evidence on the part of the bacilli only serves to increase the importance of the former.—*Cent. f. Bak. und Parasitenkunde.*

CAMPHORIC ACID IN PHTHISIS.—It is reported at the Medical Clinic of Greifswald that camphoric acid in a single dose of 1 grm. produces excellent results in the night sweats of phthisis. It is said to be well borne in all cases.—*Corres. für Schw. Aerzte.*

EXAMINATION OF SPUTUM OF SCHOOL CHILDREN FOR TUBERCLE BACILLI.—GRUSDEFF examined the sputum of 262 pupils in the ecclesiastical institute of Kostroma; the ages varied from 9 to 18 years. Although a very careful inquiry showed that 30 per cent. had pulmonary troubles, that 28 per cent. expectorated, that 31 per cent. were engaged in choral singing, that 45 per cent. secretly smoked, and that 22 per cent. had tubercular parents or relatives, nevertheless the investigator was unable to discover tubercles in a single case in the sputum, although he exercised great care in the examination and employed the most faultless methods of examination.—*Cent. f. Bak. und Parasitenkunde.*

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LONDON OFFICE, 57 AND 59 LUDGATE HILL.

SATURDAY, MAY 3, 1890.

PROFESSIONAL UNIFICATION.

The near approach of the Annual Meeting of the American Medical Association leads to a very pertinent inquiry, as to whether or not any practical steps will be taken on that occasion, having for their purpose a forward movement along the line of a more thorough and effective organization of our entire profession than now exists. The desirability of such action can scarcely be questioned, while any method or plan that may be offered must be freely open for the fullest possible discussion, criticism and amendment.

It is well known that there are in this country more than 70,000 practitioners who hold more or less closely to an allegiance with the American Medical Association. This allegiance is often of a very nominal character, and yet carries with it very many benefits to the individual, while their usefulness to the Association absolutely amounts to nothing, or is of so intangible a nature as to be both invisible and unfelt. This leads to a demand for a more equitable adjustment of existing conditions.

Several hundred local societies claim a direct connection with, and are officially recognized as auxiliary organizations of the Association, and have an aggregate membership of many thousands. These societies are entitled to send to the annual meetings of the Association one in ten of their membership as representative delegates. Usually only a portion and often none of these elected delegates attend the annual meetings, and where there is a non-attendance the Association receives no practical benefit whatever from such auxiliaries.

Supposing, however, that all the elected delegates from all the recognized auxiliary societies were to attend the annual meetings, and thus become enrolled members, the Association would only derive one-tenth of the benefits those societies should in turn confer upon it.

This indicates not only the desirability, but an actual necessity for the readjustment of the working plan of the Association organization, so as to place it more in consonance with the radically changed conditions that have taken place, and been set in motion within the past few years.

A very extended feeling of the professional pulse in many parts of the country, with a taking of temperature, indicates a universal demand for a revision of the working plan of the Association, and a very common assent to a proposition that certain auxiliary societies should become actual branches of the great central organization, and their members recognized as veritable enrolled and active members of the American Medical Association.

There are some necessary details pertaining to this proposal of a change so important in the working plan of the Association, that for a saving of time should be referred to a committee to formulate and present to the ensuing meeting for discussion and final action. Such as:

Shall the great geographical district societies be requested to amend their scheme of organization so as to enable them to become branch associations?

The same of State, County and City Societies?

Shall the election of officers be by delegates or otherwise?

The presentation of a fair but systematic method for the collection of annual dues, and the amount, with perhaps some other matters that may be suggested, will engage the attention of the committee.

It is particularly desirable that the Journal of the Association be regularly sent to every physician in this country; this may be done through the instrumentality of the branch societies and thus made to form a channel for intercommunication that cannot be excelled. This may be brought about through the annual payment of dues in the branch associations. Using the same method now adopted in the American Medical

Association, with a proviso that any member who has once paid his annual dues including an amount sufficient to pay for the cost of the Association Journal, should on exhibition of a certificate to that effect, be exempt from a second payment, for such purpose, even though he attend meetings of the other branches, or the annual meeting of the American Medical Association.

The harmonious unification and practical bringing together as bona fide supporting members of one-half or more of the entire number of those who now claim a nominal allegiance to the American Medical Association, will be of very great value and importance, not only to every individual member, who thus becomes an active, integral part of a highly educated body, and influential organization; but the movement would be of vast significance to the entire world.

While we are persuaded that the proposition above outlined is feasible, it is now with the members of the American Medical Association soon to assemble in Nashville, to voice their wishes, and either give our suggestions the weight of their favorable endorsement and action, or allow us to go along in the old and smoothly beaten path in which we are now traveling.

THE STRUGGLE OF BIOLOGICAL PATHOLOGY IN MEDICINE.

There is no subject that can be rationally studied detached from its natural surroundings, and every effort in that direction results in interminable misunderstanding and dispute. The controversy as to the origin of life in animal and vegetable infusions was waged and settled even within the memory of our younger readers. BASTIAN fought manfully for his position, and with the defeat of his argument came the downfall of the pathology of our fathers. Before the mind of the scientific world had time to readjust itself, PASTEUR and LISTER made the practical application of the deductions from the experiments which this argument called forth, and results in wound treatment were attained which have scarcely been equaled since. Conservative English surgery was in arms. Doubtful insinuation and ridicule were called to the assistance of sarcasm and legitimate argument to overthrow the practice of Lister. His methods were tried by unthinking imitators without success, and their failures were used as arguments against the theory on which the method was founded. The antagonism which the germ theory stirred up in the minds of men accustomed to the vague theories by which wound diseases had long been explained, was intensified by personal prejudice and pique. No room was found for the growth of the antiseptic methods and principles until they had been transferred to German soil. The great hospitals of England, while they often fumed with carbolic acid, and hissed with the spray, offered only exceptional illustrations of the rational method. The whole system of medical appointment in London closed the great clinics to the younger men, and intensified the inertia for which our insular neighbors are proverbial. The growth of the scientific and Real schools in Germany had so modified the system of medical education there, and so prepared the candidates for medical studies, that laboratory work and laboratory methods occupied a much wider field in German medicine than elsewhere in the world. The indefatigable German mind, roused now by an imperial awakening, received the new ideas which came to them from Scotland and France, and cultivated them in the true scientific spirit. German medicine then was not so bureaucratic as it has since become, and the intense activity in all departments of thought offered that plasticity of mind which is so necessary to a reorganization of ideas. Almost thirty years before, VON LANGENBECK brought back from England not only the cleanly methods of English surgery and improved hospital management, but also the considerate, refined, and gentlemanly relations between patient and physician, which are so essential to proper clinical study and rational treatment. His influence had refined the *corps* of German medicine, and his coincident utilization of the rich operative experience, which he secured in France, made his clinic and his lecture-room the centre of a revolution in scientific surgery among German speaking people. No wonder then that with such men as his pupils were, and with a class of students eminently conscientious and painstaking, the invasion of biological thought was attended with the most happy results. The university system of Germany was admirably adapted to further and encourage the growth of the new ideas and the new methods, yet advance was slow, and se-

cured only by the most trying conflicts. And had it not been for the establishment of many new clinics and hospitals, it is doubtful if this antiseptic method would have yet secured that position which it now holds.

Upon an insufficient data, Lister successfully inaugurated his wound treatment, which, although shorn of some of its most conspicuous rites, still remains intact in all its essentials. His method not only broadened the field of surgery, but reduced the mortality and sufferin_, and by shortening the time of treatment, and usurping expectant treatment in a large number of chronic diseases, increased the hospital capacity of the world many fold. Surgery was rewritten in Germany, and new indications, new operations, and new prognoses were established. The conservative era of surgery began. OGSTON and ROSENBACH afterwards demonstrated the parasitic nature of all the wound diseases, and wound inflammation was reduced almost to the adage, "No bacteria, no pus." Although the practice of antiseptic surgery had reached a very high degree of perfection before the mycotic origin of wound diseases had been demonstrated, both positively and negatively by bacteriological experiment, the secure basis of fact which these researches furnished, and the indubitable deductions from the experiments on animals eliminated all those exceptional observations which were so confusing to the enquiring and inexperienced mind.

It is unnecessary to call attention to a similar illustration of the advance of antiseptic methods in obstetrics. Unfortunately these practices have been able to secure only the large hospitals. The city and country practitioners alike still atone for their sins of omission, commission, and ignorance only by "aspergillations" and ablutions of weak carbolic acid water. That rational methods and precautions are less necessary in detached confinements than in crowded and dirty hospital wards, and indeed less essential to a favorable result in obstetrics than in surgery, sufficiently explains the condition of the practice.

The eager manner in which from sheer desperation, surgeons and obstetricians acted on the indications of the germ theory of the wound diseases finds no parallel in the application of the same principles to medical diseases. On the first hint of the cause of wound disease, although substantiated by most meager proof, the prevention of infection in surgical procedures was carried to a point of perfection which, save in exceptional instances, still remains ideal as well as typical. It is not at all to their discredit, but rather to their credit that the originators and initiators of these methods carried their precautions and preventive means to a point which, in the light of modern bacteriological teachings, is little short of ridiculous.

Long before there was a possibility of bacteriological demonstration, the clinical characteristics of the acute infectious diseases led HENLE to his logical demonstration of their biological origin. The infectious and inoculable qualities of tuberculosis were demonstrated by VILLEMIN as early as 1865. The clinical study of typhus fever, typhoid fever, yellow fever and cholera, had placed these diseases in the same etiological category as the acute infectious diseases. To these clinical suggestions and logical conclusions were early added, not only the miraculously favorable results of the application of the biological study to surgery and obstetrics, but also the bacteriological demonstration of the specific cause of anthrax, gonorrhœa, typhoid fever, tuberculosis, pneumonia and cholera. The material facts on the etiology of disease handed over to the physicians by KOCH and his "specific" school are voluminous and exhaustive. Yet we see very meager improvements in the treatment, in prevention of infectious diseases, or in their death-rate in hospital or general practice. We hear complaints that bacteriological teachings are impractical, and physicians go hopelessly on in the ways of their forefathers.[1]

Why this sad neglect to utilize in medicine the principles so long and so successfully applied to surgery and obstetrics? It is possible that parasitism in other animals and in plants has not been studied enough to deduce those general principles, the understanding of which is necessary to the proper indications for the treatment of the infectious diseases. It is possible that the serious and fatal consequences of syphilis, tuberculosis, typhoid fever, and the acute infectious diseases of children, are due rather to secondary infection with facultative parasites, or secondary invasion with putrefactive bacteria, than to the

[1] Discussion Academy of Medicine, New York Medical Record, April, 1890.

primary infection by which the nosological appellation is selected. It is possible that the prevention of the infectious diseases is the only hope of medicine, as the prevention of wound diseases is the boast of surgery. It is possible that the hint given in the teachings and practice of Jenner have been too long untried in other diseases, and that the utilization of the principle on which immunity is derived in small-pox may cause a number of the contagious diseases to disappear from the civilized world. It is possible that too much attention has been paid to specific bacteriology, and that a closer relation must be established between mycological pathology and physiology before a fruitful issue can be expected. It is possible that the teachings of the German investigators must be transplanted away from all personal prejudice and bias, and among physicians who are renowned the world over as practical "doctors," before that advance will be made which is so much despaired of, though desired by all.

THE JOURNAL.

It is the purpose of the Board of Trustees under whose direction it is published, to place a copy of this Special Edition of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in the hands of every regular, registered physician in North America.

By reason of the wonderful enterprise of the commercial world methods of communication are so perfected, and the facilities at command are such, that we find it not only possible but feasible to pay our respects to one hundred thousand medical men.

It becomes at once apparent that, with the possession of such facilities for intercommunication, the field of journalism is practically without limit, since the utterances of the individual to-day may become, to-morrow, the property of the world. It is evident that journalism as a means for the universal dissemination of medical knowledge is, as yet, but in its infancy, and that medical journals in the future are not only to be multiplied in numbers, but that in the struggle for survival they will be greatly improved. As one of the practical results of such world-wide interchange of thought men in every nation are being stimulated to earnest and able investigation, until as never before, art, science and cultured brains are being consecrated to the development of medical science.

The clearer expression of the causes of disease, of the phenomena of pathological processes and of modern therapy are such that those physicians who have not, during the last ten years, been diligent readers, are to-day unable correctly to interpret the literature of their profession. The amount of work that is being carried on in the way of original investigation, in both the Old World and the New, is simply phenomenal, and while medical journals are taxed to their utmost to represent the progress that is being made, the work is continually growing upon their hands. And as no physician can long hold honorable relations with his fellows unless he be a diligent reader, an ample supply of journals becomes with him an absolute necessity. In the selection of journals those lines of work in which a physician is specially interested must govern. The specialist must have his special journals, and yet no specialist can safely confine himself to these alone.

We believe it to be a first duty of every medical man to cultivate with diligence the field that lies over against his own house; to give his energies to the building up of his own local medical society, and to the support, both by pen and purse, of his own local journal, which can best represent the work of himself and his associates. But when he shall seek, as doubtless he will, a wider range of medical reading, it is then that we commend to him as we do to the thousands of practitioners to which it now comes for the first time, the claims of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. As its official organ, it not only publishes the proceedings entire of its annual meetings, but also all of the original papers which are there submitted. These papers, each in itself complete, represent the very best thought and original research of many of the foremost men in the United States. During the last year one hundred and seventy-three such papers were published in THE JOURNAL. In the department of Medical Progress original translations from the best of foreign sources will be found. The Editorial department is represented by an able corps of writers. Among the Topics of the Week the current events of the day naturally find place. During each year a series of clinics given by distinguished teachers in the leading hospitals forms an important feature. Practical Notes are added for

the benefit of the busy practitioner. A large number of the leading medical societies in the various cities are here represented in their published proceedings. By a full supply of Foreign and Domestic Correspondence we seek to acquaint our readers with medical matters of special interest the world over.

Without disparagement to other journals, for we wish them all abundant success, we submit that in no other way can medical men better subserve their own interests than by the prepayment of five dollars each as a subscription for THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

EDITORIAL NOTES.

THE ANNUAL MEETING.—From a review of the preliminary programmes it will be seen that the various Sections of the Association are to be fully and ably represented in the annual meeting which is to convene on May 20. Nashville, renowned for its hospitality, is a city of beauty—a most inviting place for the meeting. Its location is such that large numbers of physicians who have not hitherto attended the annual meetings may easily combine pleasure and profit by a visit to Nashville, and we are confident that those who are in attendance will find themselves amply rewarded. There should be a very large registration of new members this year, and the Association should feel the impulse and the vigor which such new blood is able to impart. Let the South and the West, as never before, meet the North and the East in fraternal and professional fellowship.

THE RUSH MONUMENT. — Attention having been called to the fact that *Medicine* alone, among the professions and arts, was not represented at the National Capital by a statue of any of its great men, it was unanimously resolved by the American Medical Association that Benjamin Rush, the patriot-physician of the Revolution, merited this distinction. The statues of Chief Justice Marshall, on the part of the *Law*, and of Professor Henry, on that of *Science*, made the omission of any on that of *Medicine* especially notable and regretable. Since that time the deaf-mutes have erected their statue of Gallaudet, and Congress has added statues of Lafayette and Garfield to the already large number in honor of military and naval heroes, presidents, law-makers and others.

The existing statues in Washington have ranged in price from $15,000 to $50,000, that of Prof. Henry having cost $15,000, and that of Chief Justice Marshall $40,000, both civic statues by Story. It may be approximately estimated that $40,000 will be sufficient to erect a monument that will be unexceptionable as a work of art, and it does not admit of question that this sum can be speedily raised among the 100,000 physicians and medical students in the United States, to whose patriotic and professional sentiments the committee appointed for the purpose now appeal. Every member of the profession in the United States is urgently solicited to send a contribution, however small, immediately to the Treasurer of the Rush Monument Committee, Dr. Dewitt C. Patterson, 919 I street, Washington, D. C.

THE INTERNATIONAL EDITION.—Something of the magnitude of the work of distributing one hundred thousand copies of this week's issue of THE JOURNAL may be inferred from the fact that the weight of the paper upon which it is printed amounts to 15½ tons.

THE Japanese journal, the *Sei I Kwai*, reports some editorial observations on the climatic influence over the causation of rheumatism and neuralgia among those who come to Japan from other countries. It says: "It is interesting to note that the horses imported into Japan from China, Corea and other countries, are almost sure to become the subject of, and be disabled by rheumatism."

DURING the International Medical Congress at Berlin there will be a meeting of delegates from the various cremation societies throughout Europe, at which the steps to be taken to make cremation legal in different countries will be discussed.

HIS Royal Highness the Prince of Wales has accepted the office of President of the College of State Medicine.

ONE and a quarter tons of the bromides are consumed annually at the National Hospital for Nervous Diseases, London.

MEDICAL INSPECTOR TAYLOR advises that coffins shall be cremated with their contents.

TOPICS OF THE WEEK.

THE MEDICAL PROFESSION AND THE WORLD'S FAIR.

"The World's Fair, if there is to be one, will be held in Chicago in 1892 or 1893. We have already called attention to the fact that American medicine and surgery should be represented, and represented well, on this occasion. It will not be necessary to attempt to hold a large series of International Congresses, as was done in Paris. We doubt very much if this could be done very successfully. Even at Paris these Congresses were not, as a rule, very notable gatherings, and were made up mainly of the French.

"It would be possible, however, for the profession of the three Americas to make some most interesting exhibits, and to have some very instructive conferences.

"Illustrations of the development of medical, surgical and sanitary science, and of hospital construction, should be made, and the occasion might well be taken to bring into closer relations with us the medical fraternity of Central and South America.

"For these various purposes a good organization and plenty of money will be needed. Probably the machinery of the American Medical Association will be employed in carrying out the plans. This Association has always made Chicago its centre, and although a good deal of criticism has been passed upon its efficiency and methods of work, yet the organization can be made, no doubt, to rise to the coming emergency.

"We have no doubt that our Chicago brethren will be heard from when the proper time comes."

The above, from a recent issue of the *New York Medical Record*, is worthy of practical consideration at the ensuing meeting of the American Medical Association at Nashville.

Two years ago, when the Association met in this city, there was made an exhibit of physicians' and surgeons' appliances and supplies, said to be superior to any similar exhibit ever held. The amount of practical information to be obtained in such a place on such an occasion is an adjunct education of the greatest value. What was done here can be done in Chicago, and it is hoped the project will be undertaken and made a prominent feature of the occasion.—*Cincinnati Lancet-Clinic.*

Quoting the above from the *Lancet-Clinic*, we are again reminded of the fact that one must travel abroad to learn the news at home. This is our first intimation that the headquarters of the Medical Association is at Chicago. With her accustomed modesty Chicago respectfully declines to assume any so prominent relation to the entire medical profession, so ably represented in the American Medical Association; and though it so happens that the journal of the Association is located in Chicago, those most prone to criticise will bear us witness that in the advocacy of this city as the location for the Columbian Exposition THE JOURNAL has had no part.

We are not advised that the Association has its headquarters anywhere. Newport claimed it last year, Nashville is its Mecca to-day, and time only will determine its locality a year later. We infer that our Eastern contemporary is laboring under a mild and perfectly harmless delusion, yet the practical suggestion which he makes, and heartily endorsed by the *Lancet-Clinic*, is worthy, without any reference to Chicago, of serious consideration.

It seems eminently appropriate that at the Nashville meeting an able and largely representative committee should be appointed, who should be charged with the important matter of formulating the methods by which the medical profession can be appropriately represented in connection with the Columbian Exposition; and if the gathering shall be at Chicago, her physicians will heartily unite with all who shall be interested in the common purpose, and will delight in the discharge of their whole duty, not presuming that their city is the headquarters of the Association.

THE WAY OF SUCCESS IN PRACTICE.

The following timely suggestions which we quote from the *Boston Medical and Surgical Journal* were made by Prof. David W. Cheever, at the Harvard Medical School, at a meeting of the Boylston Medical Society, March 27, 1890.

In addressing those who were about to take degrees, in referring to the essentials of success in practice he said:

The first requisite is *work*; the will to work, zeal, pertinacity; any work that is professional; always work; there is no other lasting road to success.

Cultivate good manners; they go far. Be reticent, do not gossip. Do not think aloud; it is fatal to confidence.

You are to be the family confessor; respect the confessional. Never betray professional secrets, unless under order of the judge. The laws of Massachusetts will not protect you in withholding them in a court of justice; but make them public only under protest.

Be guarded in the opinions you express; if you say but little, you will have less to take back. When the confidence of the patient wavers, be before him in asking for a consultation.

Always show a cheerful face in the sick room; its effect on the sufferer is incalculable. I hope you will be sympathetic, for you cannot feign it with success.

Never give up a case while the patient breathes. Promote euthanasy, but only with the full assent of the friends.

Stay at home; be ready in your office. Do not allow yourself to be known as anything but a doctor; everything else must be secondary, if you would build up a practice.

Begin as a general practitioner; you may remain such, with honor and profit. If you aim to be a specialist, you will be a one-sided one without first doing general practice. Take everything that comes to you and do the best you can.

Where shall you settle? Select with care, and stick. Identify yourself with a locality. If you have absolutely no capital, do not begin in a large city, unless you can earn money by side labor. Ten years in a city, five years in a town, one or two years in a village, represent the time required to get a good living. The ideal place is a medium-sized town combining an agricultural and a manufacturing population. Manufactures mean ready money, agriculture means no cash; but on the other hand, manufactures mean bad debts, and agriculture means barter, and some sort of pay for all you do.

Unlike the law, medicine leads to nothing else save science, and science is not wealthy.

So much for the lower and material view of our calling.

It is indispensable, this view; but it is not lofty. Were there nothing higher in medicine, we had best leave it. Fortunately there is something higher.

Medicine is not a trade; it is the noblest profession. Cling to that thought; never let go of it; the love of your calling; the relief of poor human suffering, the pursuit of science for its own sake. So surely as you choose the baser and material view, so surely your success shall turn to ashes in its fruition; so surely as you nourish the sacred flame of professional and scientific ardor, so surely you shall be warmed, sustained, upheld amid reverses, calumny, disappointments.

If you are thus just to yourself, be as careful to be just to other doctors. The Golden Rule is the true code of ethics. Be gentlemen, and not rude, grasping boors; respect others' rights, and yours will be respected. In no calling does bread cast upon the waters so surely return after many days. I have come to believe more and more that no effort is ever lost, no work but brings back some result. If you maintain your honor, your industry, your health, there is nothing to fear.

THE HEREDITARY FACTOR IN ALCOHOLISM.

To the thoughtful medical man, who is at the same time engaged in philanthropic work, it must often be a source of discouragement when he reflects that few, if any, of our schemes for ameliorating the condition of our fellow men do more than touch the surface of the evil attacked, leaving their obscure and deep-seated causes to go on producing a like train of ills entirely uninfluenced by our efforts. Someone asked Dr. Oliver Wendell Holmes if it were not the fact that every disease could be cured if the doctors were called early enough. "Yes," he replied, "but early enough would commonly be two hundred years in advance." That Moorish doctor spoke like a philosopher when he prayed: "Oh God, be kind to the wicked! Thou hast been sufficiently kind to the good in making them good." We must all have sometime wished that the human race could be propagated with as much care as breeders bestow upon horses and cattle; and no thinking man of our profession can contemplate without pain the marriage of consumptives, syphilitics, neurotics, or drunkards. Especially terrible, appears from recent researches, is the part played by alcoholism in heredity.

The *Progres Médical* has done the medical profession a large, good service by publishing M. Paul Sollier's Aubanel Prize Essay on the "Rôle of Heredity in Alcoholism." A more suggestive study for the physician, and a more saddening one for the philanthropist, it would be difficult to imagine. Here is original sin in terms of modern science, and the punishment threatened in the decalogue to the "third and fourth generation" is exhibited at work in perhaps its most terrible form. By abundant and well arranged statistics M. Sollier traces the afflictions of the idiot, the epileptic, the imbecile, the hydrocephalic, the choreic and the mentally debilitated, up to the alcoholic father, mother or grandparent, in so many and such clearly marked instances that it is quite impossible to deny his conclusions from the data he gives. "Conception in a state of drunkenness of the father or the mother devotes the individual conceived to a condition so profound (idiocy, complicated frequently by epilepsy, hydrocephaly, microcephaly, etc.), so that it is condemned in general to a very short existence." An alcoholic subject runs a terrible risk of conferring upon his descendants either insanity or tendency to vice or suicide or hysteria, the milder nervous disorders. The legacy of evil may miss a generation, and then appear in the next, like gout. It will generally manifest itself, if it appear in the form of dipsomania, in a taste for the same liquor as that preferred by the ancestor, and in its mildest form it will tend so to predispose the unhappy descendant to the evil of ebriety that he will find the freedom of his will in that direction seriously imperilled. The menopause, more, even, than pregnancy, seems with women a determining cause of alcoholism; or its terrible influence may first be manifested after some nervous shock, in sickness, or with advancing age. Hereditary alcoholism has a certain likeness to dipsomania, and it is a fair ground for question whether such a proved condition does not constitute irresponsibility.—Ed. *Brit. Med. Jour.—Canada Lancet.*

DEATH FROM VISCERAL AFFECTIONS AFTER OVARIOTOMY.

Dr. Coe, of New York, contributed a valuable essay, bearing the above title, to the Transactions of the American Gynecological Society for 1889. The essay is well worth the study of all surgeons who undertake abdominal sections of any kind. Pathological records of the Woman's Hospital, New York, which extend over a period of nearly twenty years, have been prepared by Dr. Coe, and they show serious visceral lesions in eighty-five cases of death following operations for the removal of ovarian cysts and diseased appendages. The most frequent complication was diffuse nephritis, which was found in thirteen cases. In no fewer than forty-three cases disease of the kidneys was detected. Mr. Doran demonstrated, as long ago as 1878, in the St. Bartholomew's Hospital Reports, that in necropsies after fatal cases of ovariotomy, renal disease of a marked character was suspiciously frequent. Dr. Coe rightly observes that when a case begins to do badly after operation, we must not always assume that something is wrong with the wound, and reproach ourselves with some omission of antiseptic precautions during the operation. Each organ should be interrogated for evidences of such a complication, as in a case of typhoid fever or pneumonia. When a patient dies from some unrecognized visceral affection, and no necropsy is made, the obscure symptoms are most probably attributed to "a low form of septicæmia."

COMMENDABLE LEGISLATION.

By a decree of the Republican Government, which came into effect at the end of last year, medical practitioners in Brazil are compelled to notify every case of yellow fever, cholera, plague, diphtheria, small-pox, measles and scarlet fever which they may be called to attend.

PRACTICAL NOTES.

CAFFEINE.

Drs. Sée and Lapicque have made some valuaale researches on the action of caffeine, the results being published in the *Bulletin de l'Académie de Médecine*. They find that, when given in small doses, the drug facilitates muscular labor by increasing the activity, not of the muscle itself, but of the corresponding cerebro-spinal centre. This diminishes the sensation of effort and keeps off fatigue. The drug certainly prevents, for a time, labored breathing and palpitations due to effort. It is a mistake to suppose that it checks waste. There is no such thing as effort and action without corresponding waste; indeed, the one implies the other. More correctly, caffeine allows more exertion through a kind of physiological usury. The ingestion of aliment allows of a certain amount of exertion, but fatigue always comes on before all the assimilated products of digestion are used up. Thus a reserve is left. Caffeine uses up more or less of that reserve. Hence the drug is only of temporary benefit. When employed for too long a time, especially when no fresh food is at hand to make up for waste and to afford more reserves, caffeine is, as might be supposed, actually noxious.—*Brit. Med. Journ.*

TYPES IN DISEASE.

Not only have the most well-defined diseases marked gradations to other diseases, but the main base of many different diseases must be of one great pathological type. Where shall we limit the involvements of indigestion? What is the form of phthisis? What common form is involved in the well-known continuity of indigestion and phthisis?

As we now recognize that in the evolution of the organism, cosmic energies and their correlations must have had an orderly continuity, so we recognize that infinitely delicate changes in the correlations of the energies, and of outer environment to protoplasm and the vital activities, are the occasions for the evolution of disease. We thus feel the force of Herschel's philosophy as applied to disease, "that there is scarcely any natural phenomenon which can be fully and completely explained in all its circumstances, without a union of several, perhaps of all the sciences."—Pearse, *Provincial Med. Journ.*

DIURETIC ACTION OF THEOBROMINE.

Gram in the *Therapeutic Monatsch.*, sums up thus:

1. Pure theobromine is with difficulty absorbed. When absorbed, it is a powerful diuretic, without acting on the heart. The diuresis is the result of a direct action on the kidney.

2. The salicylate of theobromine and soda is easily absorbed; it is a powerful diuretic, and not toxic. Only once, and then in a very weak patient, did it cause a slight vertigo.

3. The usual daily dose of the salicylate of theobromine and soda is about a drachm and a half. At one dose, more than 15 grains should never be given.

CHLORALAMIDE.

Rosenthal, in the New York *Medicinische Monatsschrift*, relates his experience with this drug in twenty-eight patients, to whom 14 ounces were given in 185 doses. He obtained the best results in cases of nervous disease; it was useful in chronic cystitis, cancer of the stomach, and diabetes mellitus; little or no benefit was obtained in the emphysematous, the asthmatic, and the phthisical. Chloralamide is to be preferred to sulphonal, if a speedy effect is desired; in most of his cases the patient was asleep within an hour of the administration of the drug. As chloralamide has scarcely any effect on the heart or respiration, it is a better hypnotic than sulphonal in cases which have any disposition to collapse. In two or three cases, slight headache and giddiness were complained of. The average dose is 45 grains; this should be given an hour before sleep.—*Canadian Practitioner.*

SALICYLATE OF SODIUM IN GENERAL PRURITUS.

Dr. Wertheimer, in the *Münchener Medicinische Wochenschrift*, advises the treatment of general pruritus by means of a 3 per cent. solution of sodium salicylate, in doses of a tablespoonful thrice daily. This plan of treatment, he says, may be continued for some time, in the confident belief that it will not only promptly moderate the unpleasant pruritic symptoms, but also radically remove the underlying disease.—*New York Med. Journ.*

METHACETINE.

Mahuert says that a dose of 4 to 6 grains lowers the temperature, and may be repeated two or three times a day. Perspiration occurs in fifteen to thirty minutes afterwards; the fall of temperature lasts two or three hours, when it again rises to its former height. The heart is not at all weakened, the blood pressure is increased, there is no change in the red blood corpuscles. In acute articular rheumatism, methacetine has not proved more efficacious than phenacetine. It relieves the lightning pains of tabes, headache, neuralgia, and chronic rheumatic pains.—*La Cronica Medica*, Feb. 5, 1890.

FOREIGN CORRESPONDENCE.

LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

Ichthyol—Subcutaneous Injections of Corrosive Sublimate as a Cure for Anthrax—Honors to Officers of the Army Medical Department.

Apropos, of the recent Chloroform Commission, a story is going the rounds to the effect, that the masses of the city of Hyderabad were moved to considerable indignation at the rumor which was promulgated concerning the desire of the Commission to secure human beings for purposes of experiment. So great was the excitement in the city, that when Dr. Lauder Brunton went to India as chief Commissioner, he was advised to enter Hyderabad under escort. It so happened, that during the sittings, a good many kidnappers were arrested on the borders of the city, which gave color to the belief, and necessitated the issue by the Kowtal, of a notice, assuring the natives that the kidnappers were not in the pay of the Commission, and threatening all persons spreading false alarms.

Among a long series of remedies for skin diseases, there is perhaps none which has made such strides in favor and use as ichthyol, a substance prepared from the petrified remains of pre-historic fish and sea animals which are found in large beds in the Tyrol. This bituminous mineral when subjected to dry distillation, yields among other products a brownish-yellow translucent oil, of a specific gravity about 0.865. This raw oil is treated with an excess of concentrated sulphuric acid, and warmed; subsequently the excess of acid is removed, and from the product the salts are prepared. Ichthyol was first recommended for rheumatism, and the success which attended its use was described as astonishing. Further and recent experience with ichthyol preparations has developed new features in its therapeutical action. Externally it still maintains its reputation as a remedy for rheumatism, while for chilblains, erysipelas, and especially for ulcers of the legs, it is highly recommended. For all these affections it is being applied in the form of an ointment, composed of ichthyol 1 part, and lanolin ointment 9 parts. In this form the substance is used in some of the leading hospitals. Internally ichthyol is found to be useful in all forms of indigestion and diseases of the liver, and such morbid conditions as arise from hyperæmia and capillary dilatation with anomalies in the circulatory system, of disturbances of the digestive organs, of neuralgia, etc. The average internal dose is about 8 grains of the sodium sulphichthyolate twice a day; it is given either as pills or gelatine enclosed capsules.

Among the number of authorities who have written on the effect of ichthyol compounds is Dr. Schweninger, of Berlin, who says: "I am pleased to say that Prince Bismarck has allowed me the pleasure of notifying how extremely favorably ammonium ichthyolate has influenced the rheumatism and lumbago from which he suffered." Probably it is not often that Prince Bismarck gives medical testimonials, but he who has suffered much from rheumatism is naturally willing enough to let his fellow sufferers know how he himself has obtained relief.

Sir Morell Mackenzie recently delivered a lecture on "The Cultivation and Preservation of the Voice." The lecturer said that of the several methods for the preservation of the voice, that of cultivation was the best. In dealing with the subject of the voice one had also to touch on speech, and it was to be deplored that in England so few pains were taken to teach children how to speak. Speech was voice transformed by nature; it did not come by nature, and he maintained that the training of the voice should be begun from the cradle. Singers should avoid tobacco, alcohol and fiery condiments. With regard to the miraculous power of various drinks he thought they were mostly harmless, having a good mental or moral effect on those who used them, but as a rule, he was of opinion that a single glass of water would suffice. Smoking took away the delicacy of tone, by its use the powers of coördination were lost. It was absolutely essential that dramatic people should lead most careful and regular lives.

Subcutaneous injection of corrosive sublimate has just cured a severe case of anthrax. A large malignant pustule was situated on the back of the hand of a man who had been engaged in removing the hides of cows, having a superficial graze on the back of his hand. The index finger was of double its normal size, two extensive vesicles filled with dark serum included the dorsal aspect of the first and second phalanx, lymphatic inflammation extended from the hand up the forearm on the radial side. Six subcutaneous injections with a four thousandth solution of sublimate, were given with the view of forming a protection against the encroachment of the bacteria. It was not without some resistance on the part of the patient, in consequence of the intensity of the pain occasioned by them, that these injections were repeated during eight days. Besides the injections the hand was kept in a warm bath of sublimate solution during the day-time, and at night was covered with a cataplasm of chopped walnut leaves, moistened with the sublimate solution. This treatment was continued for six days longer, and terminated in cure of the gangrene. Cicatrization was complete in fifteen days.

The officers of the Army Medical Deparment have been well to the fore lately and the Lord Lieutenant of Ireland, speaking at a dinner given

a few days ago by the Royal College of Surgeons in Dublin, congratulated the College upon the services of three of its graduates who are now serving in the army, and who have of late years performed distinguished service. Dr. Parke, Stanley's devoted attendant, is one of these, and the others are Dr. Reynolds and Dr. Crimmins, both of whom have received the Victoria Cross.

Only recently the statement was made that cremations at Woking have now become so common that it is no longer customary when one takes place to publicly announce the fact. Now the Manchester Cremation Society are negotiating for a plot of land adjoining the Southern Cemetery in that city with a view of erecting a crematory on a large scale. Lord Egerton of Tatton, the present owner of the land, views the project with great favor. Among the vice-presidents of the Society are the names of Mr. Jacob Bright, M.P., Sir Henry Roscoe, together with the names of many of the leading medical men and clergy. It appears as though a crematory is likely to become, at no distant period, an established institution in Manchester.

Brain sugar produced by the action of a 2 per cent. sulphuric acid upon cerebrin, is said to be identical with galactose produced from a sugar of milk. G. O. M.

DOMESTIC CORRESPONDENCE.

Proposed Conference of Medical College Delegates.

To the Editor:—In THE JOURNAL of Feb. 15, 1890, you noticed briefly the fact that the medical schools and colleges of Maryland, in conference assembled, had issued an appeal to the medical colleges of the United States to send delegates to a convention to be held in Nashville, Tenn., May 21, 1890, being the same week of the annual meeting of the American Medical Association in the same city. The appeal or address alluded to, and which has been sent to all the colleges of the United States, contains the following paragraphs:

> The Baltimore Medical Colleges and Johns Hopkins Hospital, having met for the consideration of reforms urgently needed in the system of medical education, have come to the conclusion that it is not expedient, nor indeed practical, for the medical schools of any State to assume alone the responsibility of adopting advanced methods; yet, fully convinced of the pressing need of a change, and earnestly desiring to see it consummated, they are unwilling to let matters rest longer as they are. . . . . We therefore invite you to join with us in holding a conference for the full consideration of medical education in this country, and measures for its improvement, and we request that you will appoint, at your earliest convenience, one or more delegates from your faculty to represent it at a meeting to be held at Nashville, Tenn., May 21, 1890. The following subjects are considered the most likely to come up for discussion: (1) Three years' course of six months' sessions; (2) graded curriculum; (3) written and oral examinations; (4) preliminary examinations in English; (5) laboratory instructions in chemistry, histology and pathology.

It will be noticed that the several questions here proposed for *discussion* are the same that occupied the attention of the American Medical Association at the preliminary meeting for organization in 1846, and for the twenty succeeding years were annually reported upon by a standing Committee on Medical Education, ending with resolutions for discussion and adoption, until at the annual meeting in 1866, as if weary of multiplying reports, resolutions and recommendations, the Association passed a resolution earnestly requesting the medical colleges of the whole country to send delegates to a convention exclusively of college representatives, to be held at the same place and near the time of the next annual meeting of the Association, for the purpose of procuring concert of action in the practical adoption of the same methods for advancing the cause of medical education as now proposed. The request of the Association was complied with by a large proportion of the medical colleges, and accordingly their delegates assembled in Cincinnati, May, 1867, and organized by the election of Prof. Alfred Stillé, of the Pennsylvania University, President, and Prof. G. C. E. Weber, of Cleveland, O., Secretary. Two days and a half were devoted to a thorough discussion of the principles and measures involved in placing the system of medical education in this country on a correct and creditable basis, at the close of which the following propositions were adopted with almost entire unanimity:

Resolved:—

1. That every student applying for matriculation in a medical college shall be required to show, either by satisfactory certificate, or by a direct examination by a committee of the faculty, that he possesses a thorough knowledge of the common English branches of education, including the first series of mathematics, the elements of natural sciences, and a sufficient knowledge of Latin and Greek to understand the technical terms of the profession; and that the certificate presented, or the result of the examinations thus required, be regularly filed as a part of the records of each medical college.

2. That every medical student shall be required to study four full years, including three regular annual courses of medical college instruction, before being admitted to an examination for the degree of Doctor of Medicine.

3. That the minimum duration of a regular annual lecture term, or course of medical college instruction, shall be six calendar months.

4. That every medical college shall embrace in its curriculum the following branches, to be taught by not less than nine Professors, namely: Descriptive anatomy, including dissections; physiology and histology; inorganic chemistry, materia medica, organic chemistry, and toxicology; general pathology, therapeutics, pathological anatomy, and public hygiene; surgical anatomy and operations of surgery; medical jurisprudence and medical ethics; practice of medicine, practice of surgery, obstetrics, and diseases of women and children; clinical medicine and clinical surgery. And that these several branches shall be divided into three groups or series, correspond-

ing with the three courses of medical college instruction required.

The first, or *Freshman Series*, shall embrace descriptive anatomy and practical dissections; physiology and histology; inorganic chemistry and materia medica. To these the attention of the student shall be mainly restricted during his first course of medical college instruction, and in these he shall submit to a thorough examination, by the proper members of the faculty, at its close, and receive a certificate indicating the degree of his progress.

The second, or *Junior Series*, shall embrace organic chemistry and toxicology; general pathology, pathological anatomy, therapeutics, and public hygiene; surgical anatomy and operations of surgery; medical jurisprudence and medical ethics. To these the attention of the medical student shall be directed during his second course of medical college instruction, and in them he shall be examined, at the close of his second course, in the same manner as after the first.

The third, or *Senior Series*, shall embrace practical medicine; practical surgery; obstetrics and diseases peculiar to women and children; with clinical medicine and clinical surgery in a hospital. These shall occupy the attention of the student during his third course of college instruction, and at its close he shall be eligible to a general examination for the degree of Doctor of Medicine.

The instruction in the three series is to be given simultaneously, and to continue throughout the whole of each annual college term; each student attending the lectures on such branches as belong to his period of progress in study, in the same manner as the sophomore, junior and senior classes, each pursue their studies simultaneously throughout the collegiate year in all our literary colleges.

5. That every medical college should immediately adopt some effectual method of ascertaining the actual attendance of students upon its lectures and other exercises, and at the close of each session of the attendance of the student a certificate, specifying the time and the courses of instruction actually attended, should be given, and such certificate only should be received by other colleges as evidence of such attendance.

6. That a committee of five be appointed by the President, whose duty it shall be to present the several propositions adopted by this Convention to the trustees and faculties of all the medical colleges in this country, and solicit their definite action thereon, with a view to the early and practical adoption of the same throughout the whole country; and that the same committee be authorized to call another convention whenever deemed advisable.

It will be seen that these propositions embrace all that is suggested in the recent call for another convention. The committee appointed under the sixth proposition discharged the duties assigned faithfully by a persistent correspondence, and finally called a second convention, which was held in Washington, May, 1869, and was presided over by the late Prof. S. D. Gross. The committee made a full report, and after a free discussion the action of the first convention was reaffirmed without altering any one of the propositions.

Why, then, did not the numerous colleges represented immediately carry into practical effect the measures endorsed by their representatives? Simply because those representatives, especially from the more important eastern colleges, disclaimed having any authority to bind their respective colleges, and hence all their action was merely advisory; and it is chiefly to call attention to this fact that I have written this letter. If the several college *faculties* merely send one or more delegates to the proposed convention in Nashville, without direct legal authority conferred by their several boards of trustees or governors, their action will again be only advisory. They will *resolve* in due form what *ought* to be done, and a large majority of them return home and continue the same inadequate methods of making doctors as heretofore. All efforts to secure uniform and concerted action of all the medical colleges in adopting any important advancement in medical education have thus far failed; and yet very important advancements have been made by a large number of the colleges, and others are coming to the front line of progress every year. More than twenty of the most prominent and best established colleges in different parts of the country are already in advance of the line indicated in the circular issued by the Maryland colleges; and should the latter wait a few years longer *in statu quo*, they will find themselves actually "alone," not in the advance, but in the rear. Let all the medical colleges send delegates to the proposed convention at Nashville fully authorized to do something more than merely to recommend, if any important results are really desired.

Yours truly,

N. S. DAVIS, M.D.

Chicago, April 21, 1890.

BOOK REVIEWS.

A NEW MEDICAL DICTIONARY. Including all the Words and Phrases used in Medicine, with their proper Pronunciation and Definitions, based on Recent Medical Literature. By GEORGE M. GOULD, B.A., M.D., Ophthalmic Surgeon to the Philadelphia Hospital, etc. With Tables of the Bacilli, Micrococci, Leucomaines, Ptomaines, etc., of the Arteries, Muscles, Nerves, Ganglia and Plexuses; Mineral Springs of U. S., Vital Statistics, etc. Small octavo, 520 pages. Half dark leather, $3.25; half Morocco, thumb index, $4.25. Philadelphia: P. Blakiston, Son & Co.

If the coinage of new words be indicative of medical progress, surely the last decade will mark an epoch in its history. In the various specialties, in fact in all departments of medical science, there has been a constant demand for the expression of new ideas and for clearer definitions of old ones. Indeed, a dictionary that shall be fully abreast of the times must be little less than a new one.

In answer to a very general demand the publishers of this volume have brought out a work which will be found of great value to the medical profession. The author's aim evidently has been to include within its pages every important

medical term to be found in the older vocabularies, and also to incorporate the thousands of new ones which give promise of permanency in medical literature. In Gynecology, Ophthalmology, Otology and Laryngology; in Biology, Embryology, Physiology and Pathology; in Electrotherapeutics, and in the newly-developed fields of Bacteriology, Ptomaines and Leucomaines, the aim has been evidently to issue an authoritative text-book, one that should be ample in its vocabulary, concise in its definitions, compact in its arrangement, and convenient of size for the everyday use of busy practitioners and as a handbook for medical students.

The author, in this respect, is to be congratulated upon his success, and so far as a careful examination enables us to judge, it faithfully represents the standard medical literature of to-day.

The Tables which are contained in this work will be found useful to many readers, especially those which refer to the names, habits and culture of Bacilli and Micrococci; also those which deal with Leucomaines and Ptomaines; while the tabulation of Arteries, Muscles and Nerves, with their names, locations, relations and functions, will present a ready reference in the moment of need.

The work is scientific and practical, compact in form and of moderate price. Messrs. P. Blakiston, Son & Co. are to be commended for the admirable manner in which the mechanical part of the work has been executed. Gould's New Medical Dictionary is a model of its kind, and among physicians and students everywhere we are confident that it will win its way and command a place.

AMERICAN MEDICAL ASSOCIATION.

List of Officers and Preliminary Programme of the Forty-first Annual Meeting,

To be held at Nashville, Tenn., May 20, 21, 22 and 23, 1890.

GENERAL OFFICERS.

President—E. M. Moore, M.D., New York.

Vice-Presidents—J. W. Jackson, M.D., of Missouri; H. H. Kimball, M.D., of Minnesota; J. H. Warren, M.D., of Massachusetts; T. B. Evans, M.D., of Maryland.

Treasurer—Richard J. Dunglison, M.D., lock box 1274, Philadelphia, Pa.

Permanent Secretary—Wm. B. Atkinson, M.D., 1400 Pine St., Philadelphia.

Local Secretary—G. C. Savage, M.D., Nashville, Tenn.

Librarian—C. H. A. Kleinschmidt, M.D., Washington, D. C.

Chairman Committee of Arrangements—Wm. T. Briggs, M.D., Nashville, Tenn.

The general Committee of Arrangements has very fully matured its plans. A social entertainment will be given at the Capitol on Tuesday, May 20, the first day on which the Association is to convene. We are advised that there are hotel accommodations for twenty-five hundred guests. The morning sessions will be held in the Vendome. The several Sections will be located in various halls convenient of access. At a point so central and so accessible there should be a full representation from all sections of the country. Not less than two thousand members should register at Nashville.

ADDRESSES AT THE GENERAL SESSIONS.

On General Medicine, by N. S. Davis, of Chicago, Ill.

On General Surgery, by Samuel Logan, of New Orleans, La.

On State Medicine, by Alfred L. Carroll, of New York.

PRELIMINARY PROGRAMME OF SECTIONS.

Section of Surgery and Anatomy.

Chairman—B. A. Watson, Jersey City, N. J.
Secretary—J. B. Deaver, Philadelphia, Pa.

1. Report of Several Cases of External Surgery of the Nose with Photographs, by Merrill Ricketts, Cincinnati.
2. Two Cases of Resection of Cæcum for Carcinoma with Remarks on Intestinal Anastomosis, by N. Senn. Milwaukee.
3. Left Inguinal Colotomy with Remarks upon other Operations, by J. McF. Gaston, Atlanta, Georgia.
4. Continuous Silk Suture for Wounds of the Intestine, with Experiments, by C. L. Lewis, New York.
5. The Management of Major Amputations, by John A. Wyeth, New York. Drs. Hunter McGuire and B. A. Watson will open the discussion.
6. Report of Cases of Hernia Relapsing after Different Methods of Radical Cure, by W. T. Bull, New York.
7. The Technique of Hysteromyomectomy, by Howard A. Kelly, Baltimore, Md.
8. The Dark Side of Supra Pubic Cystotomy with a Report of Cases, by H. O. Walker, Detroit, Mich.
9. John B. Deaver, Philadelphia.
10. The Necessary Peroxide of Hydrogen, by Robt. Morris, New York.
11. Excision in Irreducible Dislocation of Hip, by Charles Penrose, Philadelphia.
12. A Plea for Early Abdominal Section in Intestinal Obstruction, by J. G. Carpenter, Stanford, Ky.
13. Novel and Ideal Method of Knee-Joint Excision and Exploration, by T. S. K. Morton, Philadelphia.
14. Surgical Treatment of Biliary Obstruction, by Henry O. Marcy, Boston.
15. Joseph Price, Philadelphia.
16. Joseph Hoffman, Philadelphia.
17. R. H. Harte, Philadelphia.
18. Shot Wound of the Intestine with Report of Cases, by David Barrow, Lexington, Ky.
19. Operation of Radical Cure of Hernia in Early Infancy, by Thomas H. Manly, New York.
20. Paper on New and Improved Surgical Pump, by Elmer Lee, Chicago.
21. Treatment of Flat-Foot by Thomas' Method. by W. R. Townsend, New York.
22. Report of Gun Shot Wound of Brain, by J. Lee McComas, Oakland, Md.

Section of Obstetrics and Diseases of Women.

Chairman—Wm. Warren Potter, Buffalo, N. Y.
Secretary—Joseph Hoffman, Philadelphia.

1. Intra-Ligamentary Cysts, by W. H. Wathen, Louisville, Ky.
2. Primary and Ultimate Results of Vaginal Hysterectomy for Cancer, by Charles A. L. Reed, Cincinnati, Ohio.
3. Title not announced, Rufus B. Hall, Cincinnati, Ohio.
4. Gonorrhœal Disease of the Uterine Appendages, by J. M. Baldy, Philadelphia, Pa.
5. A Plea for Early Vaginal Hysterectomy in Cancer of the Uterus, by Franklin H. Martin, Chicago, Ill.
6. A Retrospect of Pelvic Surgery, by Joseph Price, Philadelphia, Pa.
7. The Treatment in Placenta Prævia, by Aug. P. Clarke, Cambridge, Mass.
8. Moot Points in the Doctrine of Placenta Prævia, by W. W. Jaggard, Chicago, Ill.
9. The Treatment of Placenta Prævia, based on an Experience of Thirty-four Cases, by G. H. Balleray, Paterson, N. J.
10. She Supposed it was Her Change of Life, by A. Vander Veer, Albany, N. Y.
11. Title not announced, by J. H. Kellogg, Battle Creek, Mich.
12. A Résumé of the Ideas of Paul Portal's Pratique des Accouchments, by John Bartlett, Chicago, Ill.
13. Psychical Results of Gynecological Operations, by I. S. Stone, Lincoln, Va.
14. Stricture of the Urethra in Women, by Ely Van de Warker, Syracuse, N. Y.
15. Title not announced, by John B. Deaver, Philadelphia, Pa.
16. Title not announced, by C. P. Penrose, Philadelphia, Pa.
17. Antiseptics in Obstetrics, by T. B. Greenly, West Point, Ky.
18. Hyperemesis Gravidarum, by E. W. Mitchell, Cincinnati, O.
19. Uterus Bilocularis, by L. H. Dunning, Indianapolis, Ind.
20. The Great Utility of Bleeding in Puerperal Convulsions, by John G. Meacham, Racine, Wis.
21. Title not announced, by Wm. E. Ashton, Philadelphia, Pa.
22. A Plea for the General Adoption of the Traction Forceps, by Joseph Hoffman, Philadelphia, Pa.
23. Surgical Treatment of Non-Pedunculated Abdominal Tumors, by Henry O. Marcy, Boston, Mass.
24. Extra-Uterine Pregnancy, with Cases, by E. E. Montgomery, Philadelphia, Pa.
25. Laparatomy for the Purpose of Restoring the Functions of the Tubes and Ovaries, by William M. Polk, New York, N. Y.
26. Abdominal Section; its Practical Success, by R. Stansbury Sutton, Pittsburgh, Pa.
27. The Intra-Peritoneal Ligature, by L. S. McMurtry, Louisville, Ky.
28. A New Operation for the Relief of Prolapse of the Anterior Vaginal Wall, by Andrew F. Currier, New York, N. Y.
29. Diseases of the Female Pelvic Organs, and when to Operate by Abdominal Section, by M. B. Ward, Topeka, Kansas.

This list is made up in the order of the reception of the titles; the papers will be grouped by subjects as near as possible for the meeting. Authors whose titles are not announced are requested to send them to the Chairman without delay.

Section of State Medicine.

Chairman—John B. Hamilton, Washington, D. C., Surgeon-General U. S. M. H. S.
Secretary—Francis S. Bascom, Salt Lake City, Utah.

FIRST DAY.

1. Annual Address of the Chairman.
2. Report of the Committee on Meteorology, by N. S. Davis, Chairman.
3. Report of the Committee on School Hygiene, by D. F. Lincoln, Chairman.
4. The Hygiene of the Eyes of School Children, by Dudley S. Reynolds.

DISCUSSION ON FOREGOING PAPERS.

5. Government Aids to Public Health, by Walter Wyman, M. H. S.

SECOND DAY.

1. The Causation of Influenza and some Allied Diseases, with Suggestions for their Prevention, by Henry B. Baker, President American Public Health Association.
2. Observation on the Symbiosis of certain Microörganisms, as influenced by Low Temperatures, by Jos. J. Kinyoun, M. H. S.

DISCUSSION ON FOREGOING PAPERS.

3. Paper, subject to be announced, by George H. Rohé.
4. Election of Section officers for ensuing year.

EVENING SESSION.

The special order of the evening will be a paper by George M. Sternberg, U. S. A. It will be illustrated by the stereopticon.

THIRD DAY.

1. Our Urban African Population, by J. Berrien Lindsley.
2. Los Angeles County, Cal., as a Home for the Aged, by Jay H. Utley.
3. Advantages and Disadvantages of High Altitudes, by T. G. Horn.
4. Bacteriology, by Frank Billings.
5. A Comparison between our College Work and that of European Medical Schools, with some Thoughts on Free Trade in Medical Diplomas Manufactured Abroad, by S. O. L. Potter.
6. Paper, subject to be announced, by J. R. Briggs.
7. Miscellaneous Business.

Section of Ophthalmology.

Chairman—S. C. Ayres, Cincinnati, O.
Secretary—E. J. Gardiner, Chicago, Ill.

1. Address by the Chairman.
2. The Uses of Jequirity, by Wm. Cheatham, Louisville, Ky.
3. Jequirity in the Treatment of Diphtheritic Conjunctivitis, by A. E. Prince, Jacksonville, Ill.
4. A Danger in the Use of Jequirity heretofore Unmentioned, by T. E. Murrell, Little Rock, Ark.
5. Enucleation in Panophthalmitis, by J. E. Sinclair, Nashville, Tenn.
6. Functional Nervous Diseases, by A. R. Baker, Cleveland, O.
7. Sympathetic Ophthalmia, by C. M. Hobbey, Iowa City, Ia.
8. Report of a Case of Sympathetic Inflammation Two Weeks after Enucleation of the Injured Eye, by Geo. H. Goode, Cincinnati, O.
9. Tobacco; Its Effects upon the Eye-Sight, by Flavel H. Tiffany, Kansas City, Mo.
10. A Simple and Reliable Astigmometer, by F. C. Hotz, Chicago, Ill.
11. The Necessity for more Care in the Setting of Lenses when Prescribed for the Correction of Eye Faults, by J. J. Chisolm, Baltimore, Md.
12. Some Observations on the Correction of Low Degrees of Astigmatism, by T. E. Murrell, Little Rock, Ark.
13. Progressive Hypermetropic Astigmatism, by W. T. Montgomery, Chicago, Ill.
14. A Clinical Study of a Series of Cases Exhibiting Slight Macular and Perimacular Changes, by G. E. de Schweinitz, Philadelphia, Pa.
15. Report of a Case of Transplantation without a

Pedicle for Cicatricial Ectropion. Blepharoplasty by Wolf's Method, by J. Morrison Ray, Louisville, Ky.

16. Some Points worthy of Consideration in the Operation for the Extraction of Cataract, by J. W. Wright, Columbus, O.

17. Case of Pemphigus of the Eyelids, by D. Emmett Welsh, Grand Rapids, Mich.

18. Tests of Visual Acuteness and the Standard of Normal Vision, by Edw. Jackson, Philadelphia Pa.

19. (a) Report of a Case of Left Lateral Homonymous Hemianopsia Associated with a Wound of the Occipito-parietal Region of the Right Side of the Head.

20. (b) Exhibition of an Instrument for the Measurement of the Radius of Curvature of Lenses, by R. Tilley, Chicago, Ill.

21. The Amblyopia of Strabismus, by Jno. F. Fulton, St. Paul, Minn.

22. The Increase of Blindness in the United States and the Importance of its Prevention, by J. L. Minor, Memphis, Tenn.

23. Eye Strain as a Cause of Headaches, by B. J. Baldwin, Montgomery, Ala.

24. The full Correction of Hyperopia with Convex Glasses, by W. Franklin Coleman, Chicago, Ill.

25. Treatment of Conjunctivitis Granulosa, by Peter D. Keyser, Philadelphia, Pa.

26. A Case of Static Lenticular Astigmatism, Acquired by Long-continued Use of Spectacles having a Faulty Position. By George Frothingham, Detroit, Mich.

27. (*a.*) Hæmorrhage after Cataract Extraction; (*b.*) Boracic Acid and Massage in Pannus, by C. R. Holmes, Cincinnati, O.

Section of Laryngology and Otology.

Chairman—John O. Roe, Rochester, N. Y.
Secretary—Frank H. Potter, Buffalo, N. Y.

1. The Value of Different Operations for Nasal Stenosis, by Max Thorner, Cincinnati, O.

2. An Anomalous Condition of the Human Voice, by Alexander W. MacCoy, Philadelphia, Pa.

3. Suggestions on the Use of Electricity in Ear Diseases, by E. L. Jones, Florence, Ala.

4. Glandular Hypertrophy at the Base of the Tongue, by A. B. Thrasher, Cincinnati, O.

5. Fractures and Concussions (Contra Coup) of the Temporal Bone as a Cause of Deafness, by Laurence Turnbull, Philadelphia, Pa.

6. The Galvano-Cautery and its Use in Certain Nasal Affections, by Wm. Cheatham, Louisville, Ky.

7. Pathology and Treatment of Tinitus Aurium, by A. A. Hubbell, Buffalo, N. Y.

8. The Importance of Surgical Means Applied to the Naso-Pharynx in the Relief of Naso-Pharyngeal and Middle Ear Catarrh, by C. W. Richardson, Washington, D. C.

9. How Can We Best Utilize for Scientific Study the Clinical Material so Abundant in Large Dispensaries? by O. B. Douglas, New York, N. Y.

10. Salol in Acute Pharyngitis and Tonsillitis, by Jonathan Wright, Brooklyn, N. Y.

11. Imperforate Auditory Canal, by Seth S. Bishop, Chicago, Ill.

12. On Laryngismus, by J. H. Bryan, Washington, D. C.

13. Hygiene of the Upper Air Tract, by J. E. Schadle, St. Paul, Minn.

14. Note on Nasal Hæmorrhage, by Frank H. Potter, Buffalo, N. Y.

15. Discussion on Croup and Diphtheria:

I. Their Identity, by D. Bryson Delavan, New York, N. Y.

II. Their Duality, by J. Solis-Cohen, Philadelphia, Pa.

III. Treatment: (*a*) Medical, by William H. Daly, Pittsburg, Pa. (*b*) Surgical, by F. E. Waxham, Chicago.

16. Throat Deafness, by E. Fletcher Ingals, Chicago.

17. Surgical Treatment of Chronic Spasm of the Larynx, by J. P. Creveling, Auburn, N. Y.

18. Tinnitus Aurium and Nasal Surgery, by H. Holbrook Curtis, New York.

Papers have also been promised by R. Norris Wolfenden, London, England; Carl Seiler, Philadelphia; E. L. Shurly, Detroit; Clarence C. Rice, New York, and M. F. Coomes, Louisville, Ky.

All those contemplating reading papers before this Section are requested to forward their titles to the Secretary at once.

Section of Diseases of Children.

Chairman—I. N. Love, St. Louis, Mo.
Secretary—E. F. Brush, Mt. Vernon, N. Y.

1. Chloral Hydrate in the Treatment of Scarlatina, by J. C. Wilson, Philadelphia, Pa.

2. The Value of Sulphonal in Children's Diseases, by W. C. Wile, Danbury, Conn.

3. Value of Atropia in Enuresis, by R. B. James, New York, N. Y.

4. Croup, by E. R. Early, Ridgeway, Pa.

5. Significance of High Temperature in Children, by W. L. Stowell, New York, N. Y.

6. Therapeutical Value of Antipyrin in Diseases of Children, by S. Henry Dessan, New York, N. Y.

7. Phenacetin in Whooping-Cough, by John T. Winter, Washington, D. C.

8. Further Observations Upon Tooth and Mouth Disease in the Relation to Human Scarlatina as a Prophylactic, by I. W. Stickler, Orange, N. J.

9. Tinea Capitis, by H. T. Dixon, Evansville, Ind.

10. Overmedication During Childhood, by B. F. Hart, Sweetsprings, Mo.

11. The Psychical Factor in Pædiatrics, by Frank Woodbury, Philadelphia, Pa.

12. Milk Sugar in Infant Feeding, by E. F. Brush, Mt. Vernon, N. Y.

Section of Medical Jurisprudence.

Chairman—T. B. Evans, Baltimore, Md.
Secretary—T. D. Crothers, Hartford, Conn.

The following is a list of titles of papers which will be read before this Section. The papers in the first and third sessions will be arranged differently, and include many others that are not announced.

FIRST SESSION.

Clinical Jurisprudence.—Reports on medico-legal questions occurring during the year. Relation of cases, etc.

1. President's Address, Responsibility in Dipsomania, by Thomas B. Evans, Baltimore, Md.

2. Medico-Legal Significance of Facts Common to Insanity and Inebriety, by T. L. Wright, Bellefontaine, O.

3. The Psychopathic Sequences of Hereditary Alcoholic Entailments, by Charles H. Hughes, St. Louis, Mo.

4. Some New Medico-Legal Questions Relating to Inebriety, by T. D. Crothers, Hartford, Conn.

5. The Medico-Legal Relation of the Physician to the Inebriate and Inebriety, by I. N. Quimby, Jersey City, N. J.

6. The Need of a New Criminal Jurisprudence Affecting Inebriety, by Norman Kerr, London, Eng., delegate from British Medical Association.

7. Subject not received, by Lewis D. Mason, Brooklyn, N. Y.

8. The Medico-Legal Relations of Central Paralysis, by D. R. Brower, Chicago.

SECOND SESSION.

Surgical Jurisprudence.—Papers on medico-legal questions in surgery and toxicology, etc. Discussion.

1. Medico-Legal Relations of Abdominal Surgery, by Albert Vanderveer, Albany, N. Y.

2. Medico-Legal Bearings of the Battey Operation, by Robert Battey, Rome, Ga.

3. What is the Medico-Legal Status of the Abdominal Surgeon? by William Porter, Buffalo, N. Y.

4. Medico-Legal Aspects of Gunshot Wounds of the Abdomen, by Nicholas Senn, Milwaukee, Wis.

5. The Responsibility in Cases of Intestinal Obstruction, by B. T. Shimwell, Philadelphia, Pa.

6. Some Special Reasons Why the Laparotomists Should Consider the Medico-Legal Aspects of Abdominal Surgery, by Henry O. Marcy, Boston, Mass.

7. Exploratory Laparotomy from a Medico-Legal Standpoint, by William C. Wile, Danbury, Conn.

8. The Medico-Legal Responsibility in Abdominal Surgery, by J. D. S. Davis, Birmingham, Ala.

9. The Medico-Legal Questions Which Arise from the Mistakes of Abdominal Tumors for Pregnancy, by David W. Yandell, Louisville, Ky.

10. The Legal Responsibility in Surgery of the Abdomen, by Thomas H. Manly, New York, N. Y.

THIRD SESSION.

Medico-legal question in the practice of medicine, including obstetrics and insanity, etc. Discussion.

1. The Legal Aspects of Spinal Concussion, by S. V. Clevenger, Chicago, Ill.

2. Medico-Legal Relations Between Railway Surgeons, the Company and the Injured, by R. Harvey Reed, Mansfield, O.

3. Traumatic Neurosis: Its Medico-Legal Relations, by Frederick Peterson, New York, N. Y.

4. Injury Inflicted by Unscrupulous Malpractice Suits, by Wm. F. Waugh, Philadelphia, Pa.

5. Newspaper Canards as Factors in the Insane Hospital Management, by James G. Kiernan, Chicago, Ill.

6. The Relation of the Physician to the Problem of the Correction of Vice, by G. Frank Lydston, Chicago.

7. Some Facts Concerning the Jurisprudence of Medical Electricity, by Clark Bell, Esq., New York, N. Y.

Authors of papers whose titles are not announced, and others who expect to read papers or present records of cases, are requested to send them to the Secretary at Hartford, Conn., at once.

Section of Practice of Medicine, Materia Medica and Physiology.

All communications should be addressed to the Chairman, Dr. J. H. Musser, Fortieth and Locust streets, Philadelphia, as the Secretary has been called to Europe.

FIRST DAY.

1. Address of Chairman.

2. Filaria, with the presentation of a patient, by — De Saussure, Charleston, S. C.

3. Heart Affection at High Altitudes, by S. E. Solly, Colorado Springs, Col.

4. Calomel as a Diuretic, by George Fackler, Cincinnati, O.

5. The Treatment of Insomnia and Neuralgia by Butyl Chloral Hydrate, by Hobart A. Hare, Philadelphia.

6. Recent Clinical Notes on Exophthalmic Goitre, by E. D. Furgeson, Troy, N. Y.

7. On the Treatment of Bright's Disease With Chloride of Sodium, by A. Memminger, Charleston, S. C.

8. Cleanliness and Pure Air in Maternity Work, by Joseph Price, Philadelphia.

9. Antiseptics, by Hiram Corson, Conshohocken, Pa.

10. Rheumatism and its Treatment by the Turkish Bath, by C. H. Shepard, Brooklyn, N. Y.

11. The General Action of Phenacetin, by George H. Pierce, Danbury, Conn.

12. Clinical Notes on Alterations in the Respiratory Rhythm, by Wm. A. Edwards, San Diego, Cal.

SECOND DAY.

13. The Continued Fevers of the South. Discussion opened by W. W. Johnston, Washington, D. C., and J. R. Furniss, Selma, Ala. 1. Their Nature, by John P. Wall, Tampa, Fla.; E. Marechal, Mobile, Ala.; R. Matas, New Orleans, La.; T. J. Happel, Trenton, Tenn.; D. C. Ewing, Batesville, Ark.; F. L. Sim, Memphis, Tenn.; J. C. Shepard, Winchester, Tenn. 2. The Differential Diagnosis, by George Dock, Galveston, Texas; B. F. Humphries, Hawkins, Texas; James E. Reeves, Chattanooga, Tenn. 3. The Renal Sequelæ of Malaria, by A. Memminger, Charleston, S. C.

14. The Ocular Complications of Malaria, by G. E. de Sweinitz.

15. Continued Fever of Charleston, S. C., or Gastro-Hepatic Fevers, by Thomas Legare, Charleston, S. C.

16. Malaria and the Causation of Periodic Fevers, by H. B. Baker, Lansing, Mich.

17. Chemical and Bacteriological Examination of Some Water Supposed to Have Caused Typhoid Fever, by Victor C. Vaughan, Ann Arbor, Mich.

18. Specific Treatment of Typhoid Fever, by J. H. Van Eman, Kansas City, Mo.

19. Naphthol in Typhoid Fever, by L. Wolff, Philadelphia.

20. Has Progress Been Made in the Medicinal Treatment of Typhoid Fever? by T. J. Happel, Trenton, Tenn.

21. The Modern Treatment of Rheumatism, by John V. Shoemaker, Philadelphia.

22. Facial and Thoracic Deformities Incident to Obstruction of the Naso-Pharynx, by W. E. Casselberry, Chicago.

23. Sulphonal, the Conditions and Limitations of its Value as a Hypnotic, by Henry M. Field, Newton, Mass.

24. Neurasthenia, by I. D. Wiltrout, Hudson, Wis.

25. A Substitute for the Kymographeon, by John P. Sawyer.

THIRD DAY.

26. Abuses of Antipyretic Medication, by S. Solis-Cohen, Philadelphia, Pa.

27. Oxygen, its True Value as a Therapeutic Agent, by J. M. French, Cincinnati, O.

28. Note on a Case of Fatal Leukæmia following Prolonged Lactation, by W. W. Jaggard, Chicago.

29. The Therapy of Tuberculosis Pulmonum, by James T. Whittaker, Cincinnati, O.

30. The Therapy of Phthisis Pulmonalis, by E. L. Schurley, Detroit, Mich.

31. Bright's Disease as a Neurosis, by John A. Benson, Dunning, Ill.

32. Functional Albuminuria, by Wm. B. Davis, Cincinnati, O.

33. On the Management of Obstinate Dropsies, by Jas. Tyson, Philadelphia.

34. Reform Therapeutics, by Joseph H. Warren, Boston, Mass.

35. Hydrophobia: (*a*) Clinical Study of Hydrophobia, with Statistics and Report of Cases, by Harold N. Moyer, Chicago; (*b*) Pasteur's Preventive Inoculation of Rabies, by A. Lagorio, Chicago. Discussion by C. W. Dulles, Philadelphia.

36. Antiseptics, by Hiram Corson, Conshohocken, Pa.

FOURTH DAY.

37. Consideration of Auto-intoxication from Nitrogenous Elements of the Food when Taken in Excess, by John P. Sawyer, Cleveland, O.

38. Influenza, by J. B. Johnson, Washington, D. C.

39. Water, the Parallelism of its Uses in the Physical World and the Human Cosmos, by G. W. Drake, Chattanooga, Tenn.

40. Some of the Vagaries of the Grip, by C. F. Ulrich, Wheeling, W. Va.

41. Present Status of Forced Respiration, by George E. Fell, Buffalo, N. Y.

42. Pneumonia and Bronchitis following La Grippe, by D. M. Wick, New Hartford, Iowa.

43. On the Treatment of Bright's Disease with Chloride of Sodium, by A. Memminger, Charleston, S. C.

44. General Aspects of Bacteriology and Medicine, by H. C. Markham, Independence, Iowa.

45. The Etiology, Pathology and Treatment of Typhoid Fever, by J. McFadden Gaston, Atlanta, Ga.

46. Title not supplied, by Geo. Dock, Galveston, Tex.

47. Bacteriology in Medicine, by Frank Billings, Chicago, Ill.

Section of Dermatology and Syphilography.

Secretary—William T. Corlett, Cleveland, O.

FIRST DAY, TUESDAY, MAY 20.

Section meets at 2 P. M. each day.

1. Address by the Chairman, Recent Advances in Dermatology and Syphilography.

2. The Relative Value of Mercury and the Iodine Compounds in the Treatment of Syphilis. Discussion by L. Duncan Bulkley, New York, William T. Corlett, Cleveland.

3. A Peculiar Case of Addison's Disease, by A. H. Ohmann-Dumesnil, St. Louis.

4. The Care and Treatment of the Nails, by J. V. Shoemaker, Philadelphia.

5. Herpes Zoster Gangrinosa of Koposi. A Report of Two Cases, by B. Merrill Rickets, Cincinnati.

6. Some Recent Observations of Leprosy, by P. S Abraham, London.

Appointment of Committee to nominate officers for the ensuing year.

SECOND DAY, MAY 21.

Election of Officers (time fixed by By-Laws).

7. The Etiology and Treatment of Acne. Discussion by Carl Seiler, Philadelphia, B. Merrill Ricketts, Cincinnati.

8. On the Preparation and Employment of Ointments in Diseases of the Skin, by L. Duncan Bulkley, New York.

9. Diseases of the Skin of Nervous Causation. A Report of Two Cases by William T. Corlett, Cleveland.

10. A few more Remarks on Dermatitis Herpetiformis, by A. Ravogli, Cincinnati.

11. Answers to Questions Deposited in Question Box Relating to Dermatology and Syphilography.

THIRD DAY, THURSDAY, MAY 22.

12. Sycosis, its Pathology and Treatment. Discussion by J. V. Shoemaker, Philadelphia, A. Ravogli, Cincinnati.

13. Demonstration of Syphilitic Spores in Blood, by Ephraim Cutter, New York.

14. The Scarlatiniform Erythema of Typhoid Fever, by A. H. Ohmann-Dumesnil, St. Louis.

15. Massage in Skin Diseases, by J. Leslie Foley, Montreal.

16. An Eruption Following the Use of Boracic Acid, with Colored Plates, by William T. Corlett, Cleveland.

17. Further Observations on Paget's Disease of the Nipple, by Louis Wickham, of the Hôpital St. Louis, Paris.

18. Answers to Questions Deposited in Question Box.

Section of Dental and Oral Surgery.

Chairman—J. L. Williams, Boston, Mass.

Secretary—Eugene S. Talbot, Chicago, Ill.

1. Address by Chairman, J. L. Williams, of Massachusetts.

2. Relation of Tropho-Neuroses to Disease of the Mouth and Jaws, with Special Reference to Syphilitic Necrosis, by G. Frank Lydston, Chicago, Ill.

3. How the Vascular Supply is Connected with the Teeth, by A. O. Hunt.

4. Vascular Tumors of the Mouth, and Treatment by Injection, by John S. Marshall, Chicago, Ill.

5. Electro-Therapeutics, by John L. Gish.

6. The Value of Illustration in the Lecture-Room, by L. D. McIntosh, Chicago, Ill.

7. Adenoid Growths and their Effect on the Mouth, by E. E. Briggs.

8. Cure for Cleft Palate by a Double Flap Operation and Closure with the Buried Tendon Suture, by Henry O. Marcy, Boston, Mass.

9. Hereditary Dental Anomalies, by Wm. S. Sherman.

10. Diseases of the Gums, and their Treatment, by J. Tait.

11. Irregularities of the Teeth Caused by Neurotic Conditions, by E. S. Talbot, Chicago, Ill.

Instructions to Delegates.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies *as are recognized by representation in their respective State Societies*, and from the Medical Department of the Army and Navy, and the Marine-Hospital Service of the United States.

"Each State, County and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number; *provided*, however, that the number of delegates for any particular State, Territory, county, city or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

Members by Application.—Members by Application shall consist of such members of the State, County and District Medical Societies entitled to representation in this Association as shall make application to the Treasurer and accompany said application with a certificate of good standing, signed by the President and Secretary of the society of which they are members, and the amount of the annual membership fee, five dollars. They shall have their names upon the roll, and have all the rights and privileges accorded to *permanent members*, and shall retain their membership upon the same terms.

The following resolution was adopted at the session of 1888:

"That in future each delegate or permanent member shall, when he registers, also record the name of the Section, if any, that he will attend, and in which he will cast his vote for Section officers.

Secretaries of Medical Societies as above designated are earnestly requested to forward, *at once*, lists of their delegates.

Also, that the Permanent Secretary may be enabled to erase from the roll the names of those who have forfeited their membership, the Secretaries *are, by special resolution*, requested to send him annnally a corrected list of the membership of their respective societies.

AMENDMENTS TO THE BY-LAWS.

Offered by Dr. A. L. Gihon, United States Navy.

That the first day of the meeting of this Association shall be on the first Wednesday of May or June respectively, instead of Tuesday.

By Dr. X. C. Scott, Ohio:

That the Committee on State Medicine be abolished, inasmuch as the Section on State Medicine occupies the entire ground.

Committee of Arrangements, Dr. William T. Briggs, Nashville, Tenn.

WILLIAM B. ATKINSON, Perm. Sec'y.

INTERNATIONAL MEDICAL CONGRESS, BERLIN, 1890.

Digest of Regulations and Programme.

The Tenth International Medical Congress will be opened in Berlin on Monday, August 4, 1890, and will be closed on Saturday, August 9.

The Congress shall consist of legally qualified medical men who have inscribed themselves as members, and have paid for their card of membership. Other men of science who interest themselves in the work of the Congress, may be admitted as extraordinary members.

Those who take part in the Congress shall pay a subscription of 20 marks (£1 stg. or $5) on being enrolled as members. For this sum they shall receive a copy of the Transactions, as soon as they appear. The enrollment shall take place at the beginning of the Congress. Gentlemen may, however, be enrolled as members by send-

ing the amount of their subscription to the Treasurer[1] with their name, professional status and residence appended.

The work of the Congress shall be discharged by eighteen different Sections. The members shall declare upon enrolment to which Section or Sections they intend more particularly to attach themselves.

The Committee of Organization shall, at the opening sitting of the Congress, suggest the election of a definite Committee (or Bureau), which shall consist of a President, three Vice-Presidents, and of a number—as yet undetermined—of Honorary Presidents and Secretaries.

At the first meeting of each Section a President and certain number of Honorary Presidents shall be elected; these latter shall conduct the business of the Sections in turn with the Presidents.

On account of the different languages employed, a suitable number of Secretaries shall be chosen from among the foreign members.

The Congress will assemble daily, either for a general meeting or for the labors of the different Sections. The general meetings will be held between 11 and 2 o'clock. Three such meetings will take place.

Addresses in the general sittings, as well as in any extraordinary meetings which may be determined upon, can only be given by those who have been specially requested by the Committee of Organization.

In the sittings of the Sections questions and problems will be discussed which have been agreed upon by the special committees of organization. The communications of those appointed by the committee to report on a subject shall form the basis of discussion.

Introductory addresses in the Sections must, as a rule, not exceed twenty minutes in length. In the discussions no more than ten minutes are allowed to each speaker.

All addresses and papers in the general and Sectional meetings must be handed over to the secretaries, in writing, before the end of the sitting. The members who have taken part in the discussions will be requested to hand over to the secretaries before the end of the day, in writing, the substance of their remarks.

The official languages of all the sittings shall be German, English and French. The regulations, the programme and the agenda for the day will be printed in all three languages.

The acting President shall conduct the business of each meeting according to the parliamentary rules generally accepted in deliberative assemblies.

Communications or enquiries regarding the business of separate Sections must be addressed to the managing members thereof. All other communications and enquiries must be directed to the General Secretary, Dr. Lassar, Berlin NW., 19 Karlstrasse.

SPECIAL SECTIONS—COMMITTEES OF ORGANIZATION.

Anatomy.—Fleming, Kiehl; Hasse, Breslau; Hertwig,[2] Berlin, W., Maassenstr. 24; His, Leipzig; v. Kölliker, Würzburg; Kupffer, München; Merkel, Göttingen; Schwalbe, Strassburg; Wiedersheim, Freiburg.

Physiology and Physiological Chemistry.—Bernstein, Halle; du Bois-Reymond,[2] Berlin, W., Neue Wilhermstr. 15; Biedermann, Jena; Heidenbain, Breslau; Hensen, Kiel; Hüfner, Tübingen; H. Munk, Berlin; Hoppe Seyler, Strassburg; Voit, München.

General Pathology and Pathological Anatomy.—Arnold, Heidelberg; Bollinger, München; Grawitz, Greifswald; Heller, Kiel; Ponfick, Breslau; v. Recklinghausen, Strassburg; Virchow,[2] Berlin, W., Lchellingstr. 10; Weigert, Frankfurt a M.; Zenker, Erlangen.

Pharmacology.—Binz, Bonn; Böhm, Leipzig; Filehne, Breslau; Jaffé, Königsberg; Liebreich,[2] Berlin, N.W., Dorotheen-Str. 34 a; Marmé, Göttingen; Penzoldt, Erlangen; Hugo Schulz, Greifswald; Schmiedeberg, Strassburg.

Internal Medicine.—Biermer, Breslau; Gerhardt, Berlin; Leube, Würzburg; Leyden,[2] Berlin W., Thiergartenstr. 14; Lichtheim, Königsburg; Liebermeister, Tübingen; Mosler, Greifswald; Naunyn, Strassburg; v. Ziemssen, München.

Diseases of Children.—Baginsky, Berlin; Heubner, Leipzig; Henoch,[2] Berlin W., Bellevuestr. 8; Kohts, Strassburg; Krabler, Greifswald; Ranke, München; Rehn, Frankfurt a M.; Steffen, Stettin; Soltmann, Breslau.

Surgery.—Bardeleben, Berlin; v. Bergmann,[2] Berlin N. W., Alexander Ufer 1; Czerny, Heidelberg; König, Göttingen; v. Lotzbeck, München; Schede, Hamburg; C. Thiersch, Leipzig; Trendelenburg, Bonn; Wagner, Königshütte.

Obstetrics and Gynecology.—Fritsch, Breslau; Gusserow, Berlin; Hegar, Freiburg; Hofmeyer, Würzburg; Kaltenbach, Halle; Löhlein, Giessen; Martin,[2] Berlin N. W., Moltkestr. 2; Olshausen, Berlin; Winckel, München.

Neurology and Psychiatry.—Binswanger, Jena; Emminghaus, Freiburg; Erb, Heidelburg; Fürstner, Heidelburg; Fleschsig, Leipzig; Grashey, München; Hitzig, Halle; Laehr,[2] Berlin-Zehlendorf; Jolly, Strassburg.

Ophthalmology.—O. Becker, Heidelburg; von Hippel, Giessen; Eversbusch, Erlangen; Hirschberg, Berlin; Leber, Göttingen; Michel, Würzburg; Schmidt-Rimpler, Marburg; v. Zehender, Rostock; Schweigger,[2] Berlin N. W., Roonstr. 6.

Otology.—Bezold, München; Bürkner, Göttingen; Kirchner, Würzburg; Kuhn, Strassburg; Kessel, Jena; Lucae,[2] Berlin W., Lützowplatz 9; Magnus, Königsberg, Moos, Heidelburg; Trautmann, Berlin.

Laryngology and Rhinology—B. Frankel,[2] Berlin N. W., Neustädtische Kirchstr. 12; Beschorner, Dresden; Gottstein, Breslau; A. Hartmann, Berlin; Jurasz, Heidelburg; H. Krause, Berlin, Michael, Hamburg; Schech, München; M. Schmidt, Frankfurt a. M.

Dermatology and Syphilography.—Caspary, Königsberg; Doutrelepont, Bonn; Köbner, Berlin; Lassar,[2] Berlin N. W., Carlstr. 19; Lesser, Leipzig; G. Lewin, Berlin; Neisser, Breslau; Unna, Hamburg; Wolff, Strassburg.

Diseases of the Teeth.—Busch,[2] Berlin N. W., Alexander Ufer 6; Calais, Hamburg; Holländer, Halle; Hesse, Leipzig; Fricke, Kiel; Miller, Berlin; Partsch, Breslau; Sauer, Berlin; Weil, München.

Hygiene.—Flügge, Breslau; Gaffky, Giessen; Graf, Elberfeld; F. Hofmann, Leipzig; R. Koch, Berlin; Lehmann, Würzburg; Pistor,[2] Berlin W., v. d. Heydstr. 13; Wolffhugel, Göttingen; Uffelmann, Rostock.

Medical Geography and Climatology (History and Statistics.—Abel, Stettin; Brock, Berlin; Dettweiler, Falkenstein; Falkenstein, Lichterfelde; Finkelnburg, Bonn; Guttstadt, Berlin; A. Hirsch,[2] Berlin W., Potsdamer Strasse 113; Lent, Koln; Wernich, Coslin.

State Medicine.—Falk, Berlin; Günther, Dresden; v. Hölder, Stuttgart; Knauff, Heidelburg; Liman, Berlin S. W., Königgrätzer Strasse 46 a; Schönfeld, Berlin; Schwarz, Koln; Skrzeczka, Berlin; Ungar, Bonn.

Military Hygiene.—v. Coler, Berlin; v. Fichte, Stuttgart; Grasnick, Berlin; Grossheim, Berlin; Krocker, Berlin W., Madgebuager Platz 3; Mohr, München; Mehlhausen, Berlin; Roth, Dresden; Wenzel, Berlin.

AMERICAN COMMITTEE.

S. C. Busey, Washington, D. C.; Wm. H. Draper, New York City; R. H. Fitz, Boston, Mass.; H. Hun, Albany, N. Y.; A. Jacobi, New York City; Wm. T. Lusk, New York City; Wm. Osler, Boston, Mass.; Wm. Pepper, Philadelphia, Pa.; J. Peyre Porcher, Charleston, S. C.; J. Stewart, Montreal, Can.

Those who have notified the Secretary of their intention to go to Berlin will in due time receive the proper certificate which will entitle them to the reduced rates. Those who have not sent their names are requested to do so at an early date. WM. B. ATKINSON.

1400 Pine St., Philadelphia.

[1] Treasurer's address: Dr. M. Bartels, Berlin SW., Leipzigerstrasse 75. Please to enclose a visiting card.

[2] Managing members.